#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : ISO-4113

: 02.05.90

Combination No. : 0 402 746 816

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...875PA848

: -3K

Governer no. : 0 421 815 171

Cust. part No. : 313GC5173P18

Customer-spec. information

Customer : MACK TRUCKS
Motor : FM4-2501 AVI

Motor

: EM6-250L 4VH

Power KW : 186.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. \*C : 40.0 Tolerance \*C : +2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Firing order : 1-5-3-6-2

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW

: **←** 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 10.85

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 164.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

A01

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.60

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s.: +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

: 1.30 travel mm

: +- 0.10 Tolerance mm

Rated speed rpm : 450

guide sleeve

travel mm : 3.00 : +- 0.20 Tolerance mm

Rated speed rpm : 850

guide sleeve

travel mm : 6.30

: + 0.10Tolerance mm

: 1000 Rated speed rpm

guide sleeve

: 7.80 travel mm

: +- 0.10 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 164.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s.: +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 56.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.80 Rated speed rpm : 930.0

: +- 5.0 Tolerance 1/min

rack travel mm : 4.00 Rated speed rpm : 1025.0 Tolerance 1/min : + 15.0

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : +- 0.50 Rated speed rpm : 1100

LOW IDLE

control lever

position degree : 13.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rom : 325 rack travel mm : 4.6

Rated speed rpm : 275

A02

CRT mm min. : 6.10 Testing: : 325 Rated speed rpm rack travel mm : 4.60 : + 0.10Tolerance mm rack travel mm : 2.00 TORQUE CONTROL Rated speed rpm : 875 rack travel mm : 10.85 Tolerance mm : + 0.05Rated speed rpm : 510 : 13.10 rack travel mm Tolerance mm : + - 0.10: 700 Rated speed rpm : 11.70 rack travel mm Tolerance mm : +- 0.10 Rated speed rpm : 550 : 6.55 rack travel mm Tolerance mm : + 6.55ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 510 : 1200 Pressure hPa : 13.10 rack travel mm : +- 0.10Tolerance mm **MEASUREMENT** Rated speed rpm : 510 rack travel mm : 9.30 Tolerance mm : + 0.20: 215 Pressure hPa

rack travel mm : 10.35 : +- 0.05 Tolerance mm Pressure hPa : 435 : 12.40 rack travel mm Tolerance mm : + - 0.20FUEL DELIVERY CHARACTERISTICS Aneroid pressure : 1200 : 510 Rated speed rpm Del. quantity cm3/1000 strokes : 243.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance cm3/1000s. : +- 6.00 Spreed Tolerance cm3/1000 strokes : 8.00 Check tolerance cm3/1000s. : 12. : 400 Rated speed rpm Del. quantity cm3/1000 strokes : 148.00 Tolerance cm3/1000 strokes : + 2.00

STARTING FUEL DELIVERY

Check tolerance

cm3/1000s.

Rated speed rpm : 100 rack travel mm : 9.30 Tolerance mm : +- 0.20 Del. quantity cm3/1000 strokes : 185.00 Tolerance

: + 4.00

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s.: +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm: 4.60 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 817

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...900PA848

: -4K

Governer no.

: 0 421 815 173

Cust. part No. : 313GC5173-P14

Customer-spec. information

Customer : MACK TRUCKS INC.

: EC6 350 4VH Motor

: 261.0 Power KW

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm

: + 0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: + 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.25

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 251.00

Tolerance

cm3/1000 strokes : +- 1.00

A05

Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm : 5.00 : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 42.00 Tolerance cn3/1000 strokes : + 3.00Check tolerance cm3/1000s.: +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.30 travel mm : +- 0.10 Tolerance mm Rated speed rpm : 450 guide sleeve travel mm : 3.20 : +- 0.10 Tolerance mm : 850 Rated speed rpm quide sleeve : 6.00 travel mm : +- 0.10Tolerance mm : 1000 Rated speed rpm guide sleeve : 7.60 travel mm : +- 0.10 Tolerance mm GUIDE SLEEVE POSITION

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 251.00 Tolerance cm3/1000 strokes :  $\leftarrow 1.00$ Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1900s.: 9.0 CONTROL LEVER control lever position degree : 60.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 14.20 Rated speed rpm : 955.0 Tolerance  $1/\min$ : +- 5.0 rack travel mm : 4.00 Rated speed rpm : 1105.0 Tolerance 1/min : +- 15.0 rack travel mm : 4.00 rack travel mm : 0.50 Tolerance mm : **←** 0.50 Rated speed rpm : 1200 LOW IDLE control lever : 11.0 position degree

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.0 Rated speed rpm : 275

CRT mm min. : 6.50

Testing:

Rated speed rpm : 325 rack travel mm : 5.00 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 15.25 Tolerance mm : + 0.05

Rated speed rpm : 625 rack travel mm : 15.55 Tolerance mm : + 0.05

Rated speed rpm : 700 rack travel mm : 15.50 Tolerance mm : +- 0.10

Rated speed rpm : 500 rack travel mm : 7.50 Tolerance mm : +- 7.50

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 625
Pressure hPa : 1200
rack travel mm : 15.55
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 625

rack travel mm : 8.80 Tolerance mm : +- 0.20

Pressure hPa : 280 rack travel mm : 10.75 Tolerance mm : +- 0.05

Pressure hPa : 650 rack travel mm : 13.80 Tolerance mm : + 0.20 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 281.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 132.50

Tolerance

cm3/1000 strokes :  $\leftarrow 2.00$ 

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.80 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 140.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. :  $\leftarrow 30.00$ 

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.00 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s.

: 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 02.05.90 Edition : ISO-4113 Test oil

Combination No. : 0 402 746 818

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...875PA848

: -5K

Governer no. : 0 421 815 174

Cust. part No. : 313GC5173-P22

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor : EM 6 275L 4VH

: 202.0 Power KW

## TEST BENCH REQUIREMENTS

Test oil inlet

temp.  $^{\circ}$ C : 40.0 Tolerance  $^{\circ}$ C :  $\leftarrow$  2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. L/h : 165.0 Tolerance l/h: +- 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x Length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : +-1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 12.25 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 191.00

Tolerance

cm3/1000 strokes : +- 1.00

A09

Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm: 4.70 Tolerance mm : + 0.10Del. quantity cm3/1000 strokes : 40.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance : +-5.00cm3/1000s. Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.30 travel mm : +- 0.10 Tolerance mm Rated speed rpm : 450 guide sleeve travel mm : 2.95 : + 0.15Tolerance mm : 850 Rated speed rpm guide sleeve : 6.30 travel mm : +- 0.10 Tolerance mm Rated speed rpm : 1000 guide sleeve : 7.80 travel mm : + 0.10Tolerance mm GUIDE SLEEVE POSITION

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure : 1200 Del. quantity cm3/1000 strokes : 191.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 56.0 tolerance degree : +- 4.0 RATED SPEED : 11.20 rack travel mm Rated speed rpm : 930.0 Tolerance  $1/\min$ : + 5.0 rack travel mm : 4.00 Rated speed rpm : 1045.0 Tolerance 1/min : +- 15.0 rack travel mm : 0.50 : +- 0.50 Tolerance mm Rated speed rpm : 1150 LOW IDLE control lever : 13.0 position degree tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.7

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

: 325 Rated speed rpm rack travel mm : 4.70 : +- 0.10Tolerance mm

TORQUE CONTROL

: 875 Rated speed rpm : 12.25 rack travel mm Tolerance mm : +- 0.05

Rated speed rpm : 510 rack travel mm : 14.20 Tolerance mm : + 0.10

: 700 Rated speed rpm rack travel mm : 13.30 Tolerance mm : + 0.10

Rated speed rpm : 400 : 6.90 rack travel mm Tolerance mm : +-6.90

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510 : 1200 Pressure hPa : 14.20 rack travel mm : +- 0.10 Tolerance mm

**MEASUREMENT** 

: 510 Rated speed rpm

: 9.50 rack travel mm Tolerance mm : +- 0.10

: 280 Pressure hPa rack travel mm : 10.65 Tolerance mm : +- 0.05

: 485 Pressure hPa rack travel mm : 13.00 : +- 0.30 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 265.50

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.: +-6.00

Spreed

Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 147.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

: 100 Rated speed rpm rack travel mm : 9.50 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm: 4.70 Tolerance mm : + - 0.10

Del. quantity

cm3/1000 strokes : 40.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 818AA

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. :

Governer no.

: 0 421 815 ...

Cust. part No. : 313GC...

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor

: EM 6 275L 4VH

Power KW : 202.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. L/h

: 165.0

Tolerance l/h:  $\leftarrow 5.0$ 

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50

Tolerance mm : +- 1.50

Firing order

: 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : **←** 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 12.25

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 191.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance : +- 4.00 cm3/1000S. Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance : 9.0 cm3/1000s. Rated speed rpm : 325.0 Rack travel in mm: 4.70 Tolerance mm : + 0.10Del. quantity cm3/1000 strokes : 40.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance cm3/1000s.: + 5.00Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL : 325 Rated speed rpm guide sleeve : 1.10 travel mm Tolerance mm : + 0.10Rated speed rpm : 450 guide sleeve : 1.95 travel mm : +- 0.15 Tolerance mm Rated speed rpm : 850 guide sleeve : 6.50 travel mm : +- 0.20 Tolerance mm

: 1000 Rated speed rpm

guide sleeve

: 9.30

: +- 0.20

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 191.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 CONTROL LEVER control lever position degree : 61.0 tolerance degree : +- 4.0

RATED SPEED

: 11.20 rack travel mm Rated speed rpm : 930.0 Tolerance 1/min : +- 5.0

: 4,00 rack travel mm Rated speed rpm : 970.0 Tolerance 1/min : +- 15.0

rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1150

LOW IDLE

control lever

position degree : 13.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.7

Rated speed rpm : 275

travel mm

Tolerance mm

GUIDE SLEEVE POSITION

CRT mm min. : 5.30

Testing:

Rated speed rpm : 325 rack travel mm : 4.70 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 12.25 Tolerance mm : +- 0.05

Rated speed rpm : 510 rack travel mm : 14.20 Tolerance mm : +- 0.10

Rated speed rpm : 700 rack travel mm : 13.30 Tolerance mm : +- 0.10

Rated speed rpm : 400 rack travel mm : 6.90 Tolerance mm : +- 6.90

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 1200
rack travel mm : 14.20
Tolerance mm : + 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 9.50
Tolerance mm : + 0.10

Pressure hPa : 280 rack travel mm : 10.65 Tolerance mm : + 0.05

Pressure hPa : 485 rack travel mm : 13.00 Tolerance mm : +- 0.30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 265.50

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 147.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.00

Check tolerance

cm3/1000s. : + 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 9.50 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.70 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 40.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 02.05.90 Edition : ISO-4113 Test oil

Combination No. : 0 402 746 819

Injection pump

Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807

Governor

Governer design. : RQV325...875PA848

: -6K

Governer no. : 0 421 815 175

Cust. part No. : 313GC5173P26

Customer-spec. information

Customer : MACK TRUCKS : EM6-225L 4VH Motor

Power KW : 165.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +-0.10

Firing order : 1-5-3-6-2

: - 4

: 0-60-120-180-240 Phasing

> : -300 : +- 0.50

Tolerance

Check

tolerance "NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 11.05 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 159.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

A17

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm: 4.70

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 41.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30 Tolerance mm : +- 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.00 Tolerance mm : +- 0.20

Rated speed rpm : 850

guide sleeve

travel mm : 6.30 Tolerance mm : +- 0.10

Rated speed rpm : 1000

guide sleeve

travel mm : 7.80
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 159.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 56.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.00 Rated speed rpm : 930.0 Tolerance 1/min : + 5.0

rack travel mm : 4.00
Rated speed rpm : 1030.0
Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1150

LOW IDLE

control lever

position degree : 13.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.7

Rated speed rpm : 275

CRT mm min.

: 6.20

# Testing:

Rated speed rpm

: 325

rack travel mm : 4.70 Tolerance mm

: +- 0.10

TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 11.05

Tolerance mm

: +- 0.05

Rated speed rpm

: 510

rack travel mm Tolerance mm

: 13.30

: + 0.10

Rated speed rpm rack travel mm

: 700

: 11.90

Tolerance mm

: +- 0.10

Rated speed rpm rack travel mm

: 600 : 12.60

Tolerance mm

: + 0.10

Rated speed rpm

: 350

rack travel mm : 6.60 Tolerance mm

: +- 6.60

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

: 510

Rated speed rpm Pressure hPa

: 1200

rack travel mm

: 13.30

Tolerance mm

: +- 0.10

#### **MEASUREMENT**

Rated speed rpm

: 510

rack travel mm

: 8.70

Tolerance mm

: + 0.20

Pressure hPa

: 220

rack travel mm

: 9.75

Tolerance mm

: +- 0.05

Pressure hPa

: 500

rack travel mm

: 12.20

Tolerance mm

: +- 0.20

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rpm : 510

: 1200

Del. quantity

cm3/1000 strokes : 237.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.

: + 6.00

Spreed

Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s.

: 12.

: 400

Rated speed rpm Del. quantity

cm3/1000 strokes : 133.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000S.: +- 4.00

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 8.70

: + 0.20

Tolerance mm Del. quantity

cm3/1000 strokes : 155.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s.

: +- 30.00

## LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.70

Tolerance mm Del. quantity

cm3/1000 strokes : 41.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.

: <del>+-</del> 5.00

: +- 0.10

Spreed

Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 820

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...850PA878K

Governer no. : 0 421 815 177

Cust. part No. : 313GC5173-P4

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor

: E6 275 4VH

Power KW

: 202.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : + 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

mirs. L/h : 165.0 Tolerance L/h : +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : +-0.10

Rack travel in mm: 10.50

Tolerance mm : +-1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

: +- 0.75 tolerance "NW

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.05

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 182.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance cm3/1000s. : + 4.00Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance : 9.G cm3/1000s. Rated speed rpm : 325.0 Rack travel in mm: 4.60 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 35.00 Tolerance cm3/1000 strokes : +- 3.00 Check tolerance cm3/1000s.: +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve travel mm : 1.30 : +- 0.10 Tolerance mm Rated speed rpm : 450 quide steeve travel mm : 2.95 : + - 0.15Tolerance mm Rated speed rpm : 850 auide sleeve travel mm : 6.30 Tolerance mm : + 0.10Rated speed rpm : 1000 auide sleeve travel mm : 7.80 : +- 0.10Tolerance mm GUIDE SLEEVE POSITION

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP : 850 Rated speed rpm Aneroid pressure : 900 Del. quantity cm3/1000 strokes : 182.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 56.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 11.00 Rated speed rpm : 905.0 Tolerance 1/min : +- 5.0 : 4.00 rack travel mm Rated speed rpm : 1040.0 Tolerance  $1/\min$ :  $\leftarrow$  15.0 rack travel mm : 0.50 Tolerance mm : **←** 0.50 Rated speed rpm : 1150 LOW IDLE control lever position degree : 11.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.6

: 275 Rated speed rpm

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.60 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 850 rack travel mm : 12.05 Tolerance mm : + 0.05

Rated speed rpm : 600 rack travel mm : 12.65 Tolerance mm : + 0.05

Rated speed rpm : 700 rack travel mm : 12.60 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 6.20 Tolerance mm : +- 6.20

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 12.65
Tolerance mm : +- 0.05

**MEASUREMENT** 

Rated speed rpm : 600

rack travel mm : 9.70 Tolerance mm : + 0.20

Pressure hPa : 215
rack travel mm : 10.35
Tolerance mm : + 0.05

Pressure hPa : 360
rack travel mm : 11.70
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 213.50

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 146.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. :  $\leftarrow$  4.00

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 9.70 Tolerance mm : +-0.20

Del. quantity

cm3/1000 strokes : 180.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.60 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : + 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 02.05.90

Test oil

: ISO-4113

Combination No. : 0 402 746 821

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...850PA878

: -1K

Governer no.

: 0 421 815 178

Cust. part No. : 313GC5173-P8

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor

: E6 300 4VH

Power KW

: 224.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : + 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

A25

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +-0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.95

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 201.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance : +- 4.00 cm3/1000s. Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000S. : 9.0 : 325.0 Rated speed rpm Rack travel in mm : 4.60 Tolerance mm : + - 0.10Del. quantity cm3/1000 strokes : 35.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve travel mm : 1.30 : +- 0.10 Tolerance mm Rated speed rpm : 450 guide sleeve : 2.95 travel mm : + - 0.15Tolerance mm

Rated speed rpm : 850 guide sleeve : 6.30 travel mm : + 0.10Tolerance mm Rated speed rpm : 1000 guide sleeve : 7.80 travel mm Tolerance mm : + - 0.10GUIDE SLEEVE POSITION

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 850 Aneroid pressure : 900 hPa Del. quantity cm3/1000 strokes : 201.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance : 9.0 cm3/1000s.CONTROL LEVER control lever position degree : 56.0 tolerance degree : + 4.0 RATED SPEED

rack travel mm : 11.90 Rated speed rpm : 905.0 Tolerance  $1/\min$ : +- 5.0 rack travel mm : 4.00

Rated speed rpm : 1040.0 Tolerance  $1/\min$  : +- 15.0

rack travel mm : 0.50 : +- 0.50 Tolerance mm Rated speed rpm : 1100

LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.6

Rated speed rpm : 275 CRT mm min. : 1.50

Testing:

Rated speed rpm : 325
rack travel mm : 4.60
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 850 rack travel mm : 12.95 Tolerance mm : + 0.05

Rated speed rpm : 700 rack travel mm : 13.40 Tolerance mm : + 0.10

Rated speed rpm : 600 rack travel mm : 13.60 Tolerance mm : +- 0.10

Rated speed rpm : 500 rack travel mm : 6.55 Tolerance mm : +- 6.55

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 13.60
Tolerance mm : +- 0.10

**MEASUREMENT** 

Rated speed rpm : 600

rack travel mm : 10.10 Tolerance mm : + 0.20

Pressure hPa : 250
rack travel mm : 10.95
Tolerance mm : + 0.05

Pressure hPa : 475 rack travel mm : 12.80 Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 700

Del. quantity

cm3/1000 strokes : 220.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 6.00

Aneroid pressure

hPa : 900 Rated speed rpm : 600 Del. quantity

cm3/1000 strokes : 236.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.00

Aneroid pressure

hPa :)

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 156.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.10 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 215.00

Tolerance

cm3/1000 strokes :  $\leftarrow 20.00$ 

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.60 : +- 0.10 Tolerance mm

Del. quantity cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes :  $\leftarrow 3.00$ 

Check tolerance cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

: 12.0 cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 822

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...900PA878

: -2K

Governer no. : 0 421 815 179

Cust. part No. : 3136C5173-P12

Customer spec. information

Customer : MACK TRUCKS INC.

Motor

: E6 350 4VH

Power KW

: 261.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. L/h : 165.0 Tolerance L/h : +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 008

B01

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Firing order : 1-5-3-6-2

Phasing

: 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50 Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.95

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 237.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.10

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

: +- 5.00 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL.

: 325 Rated speed rpm

guide sleeve

: 1.30 travel mm : + 0.10Tolerance mm

Rated speed rpm : 450

quide sleeve

travel mm : 3.20 Tolerance mm : + 0.10

: 850

Rated speed rpm

guide sleeve

travel mm : 6.00 : + 0.10Tolerance mm

Rated speed rpm : 1000

guide sleeve

: 7.60 travel mm

: + 0.10Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

**B02** 

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa

: 900

Del. quantity cm3/1000 strokes : 237.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.: +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.: 9.0

CONTROL LEVER

control lever

position degree : 59.0

tolerance degree : +- 4.0

RATED SPEED

: 12.90 rack travel mm : 955.0 Rated speed rpm

Tolerance  $1/\min$ : + 5.0

rack travel mm : 4.00 : 1090.0 Rated speed rpm

Tolerance 1/min : +- 15.0

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1150

LOW IDLE

control lever

position degree : 11.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm

Rated speed rpm : 275

CRT mm min. : 1.50

# Testing:

Rated speed rpm : 325 rack travel mm : 4.10 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 13.95 Tolerance mm : + 0.05

Rated speed rpm : 625 rack travel mm : 14.15 Tolerance mm : +- 0.05

Rated speed rpm : 800 rack travel mm : 14.05 Tolerance mm : +- 0.05

Rated speed rpm : 500 rack travel mm : 6.75 Tolerance mm : +- 6.75

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 625
Pressure hPa : 900
rack travel mm : 14.15
Tolerance mm : + 0.05

## **MEASUREMENT**

Rated speed rpm : 625

rack travel mm : 8.50 Tolerance mm : + 0.20

Pressure hPa : 275 rack travel mm : 10.05 Tolerance mm : +- 0.05

Pressure hPa : 570 rack travel mm : 12.50 Tolerance mm : +- 0.20

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 625 Del. quantity

cm3/1000 strokes : 260.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed

Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 138.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.00

Check tolerance

cm3/1000s. : +- 4.00

## STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.50
Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 160.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

## LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.10 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. :  $\leftarrow$  5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 823

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...875PA878

: -3K

: 0 421 815 180 Governer no.

Cust. part No. : 313GC5173-P24

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor : EM6 275L 4VH

Power KW : 202.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C : + 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0

Tolerance l/h: + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar

Tolerance bar : + 1.5

Test lines : 1 680 750 008

**B05** 

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : +-0.10

Rack travel in mm: 10.50

Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 12.25

: +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 191.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance cm3/1000S. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 Rated speed rpm : 325.0 Rack travel in mm : 4.70 : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 40.00 Tolerance cm3/1000 strokes : + 3.00Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.30 travel mm Tolerance mm : +- 0.10 Rated speed rpm : 450 guide sleeve travel mm : 2.95 : + 0.15 Tolerance mm : 850 Rated speed rpm auide sleeve : 6.30 travel mm : + 0.10Tolerance mm : 1000 Rated speed rpm guide sleeve : 7.80 travel mm Tolerance mm : +- 0.10 GUIDE SLEEVE POSITION

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 191.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 CONTROL LEVER control lever position degree : 56.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 930.0 Tolerance  $1/\min$ :  $\leftarrow$  5.0 rack travel mm : 4.00 Rated speed rpm : 1045.0 Tolerance 1/mir:  $\leftarrow 15.0$ rack travel mm : 0.50 : +- 0.50 Tolerance mm : 1150 Rated speed rpm LOW IDLE control lever position degree : 13.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.7

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.70 : +- 0.10Tolerance mm

TORQUE CONTROL

: 875 Rated speed rpm: rack travel mm : 12.25 Tolerance mm : +- 0.05

Rated speed rpm : 510 : 14,20 rack travel mm : + - 0.10Tolerance mm

Rated speed rpm : 700 rack travel mm : 13.30 Tolerance mm : +- 0.10

Rated speed rpm : 400 rack travel mm : 6.90 : + 6.90Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510 : 1200 Pressure hPa rack travel mm : 14.20 : +- 0.10Tolerance mm

**MEASUREMENT** 

: 510 Rated speed rpm

rack travel mm : 9.50 : + - 0.10Tolerance mm

Pressure hPa : 280 : 10.65 rack travel mm Tolerance mm : +- 0.05

: 485 Pressure hPa : 13.00 rack travel mm Tolerance mm : +- 0.30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 265.50

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s.: +- 6.00

Spreed Tolerance

cm3/1000 strokes : 3.00

Check tolerance

cm3/1000s.: 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 147.00

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 9.50 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm: 4.70 Tolerance mm : **←** 0.10

Del. quantity

cm3/1000 strokes : 40.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 824

Injection pump

Pump designation: PES6P12DA72ORS7135 EP type number : 0 412 726 807

Governor

Governer design. : RQV325...875PA878

: -4K

Governer no. : 0 421 815 181

Cust. part No. : 313GC5173-P28

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor : FMA 2251 /4/4

: EM6 225L 4VH : 165.0 Motor

Power KW

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. L/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50Tolerance

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 11.05 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 159.00

Tolerance

cm3/1000 strokes : + 1.00

**B09** 

Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm: 4.70 Tolerance mm : + 0.10Del. quantity cm3/1000 strokes : 41.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Chack tolerance cm3/1000s.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.30 travel mm Tolerance mm : + 0.10Rated speed rpm : 450 auide sleeve travel mm : 2.95 Tolerance mm : +- 0.15Rated speed rpm : 850 auide sleeve : 6.30 travel mm : +- 0.10Tolerance mm : 1000 Rated speed rpm guide sleeve : 7.80 travel mm : +- 0.10 Tolerance mm

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure hPa : 900 Del. quantity cm3/1000 strokes : 159.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 55.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 10.00 Rated speed rpm : 930.0 Tolerance 1/min : +- 5.0 : 4.00 rack travel mm Rated speed rpm : 1030.0 Tolerance 1/min : +- 15.0 rack travel mm : 0.50 : +- 0.50 Tolerance mm : 1150 Rated speed rpm LOW IDLE control lever position degree : 13.0 tolerance degree : +- 4.0 Setting point w/out bumper spring

Rated speed rpm rack travel mm

Rated speed rpm

: 4.7

: 275

CRT mm min.

: 1.50

## Testing:

Rated speed rpm

: 325

ratk travel mm

: 4.70

Tolerance mm

: + - 0.10

TORQUE CONTROL

: 375

Rated speed rom rack travel mm

: 11.05

Tolerance mm

: + - 0.05

Rated speed rpm

: 510

rack travel mm Tolerance mm

: 13.30 : +- 0.10

Rated speed rpm

: 600

rack travel mm

: 12.60

Tolerance mm

: + 0.10

Rated speed rom

: 700

rack travel mm

: 11.90

Tolerance mm

: +- 0.10

Rated speed rpm rack travel mm

: 350

: 6.60

Tolerance mm

: +- 6.60

## ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm

: 510

Pressure hPa

: 900

rack travel mm

: 13.30

Tolerance mm

: +- 0.10

# **MEASUREMENT**

Rated speed rom

: 510

rack travel mm

: 8.70

Tolerance mm

: + 0.20

Pressure hPa

: 220

rack travel mm

Tolerance mm

: 9.75

: +- 0.05

Pressure hPa

: 500

rack travel mm

: 12.20

Tolerance mm

: +- 0.20

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa

: 900 : 510

Rated speed rpm

Del. quantity

cm3/1000 strokes : 237.00

Tolerance cm3/1000 strokes : +- 3.00

Check tolerance : +~ 6.00

cm3/1000s.

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000S. : 12.

Rated speed rpm : 400

pel. quantity

cm3/1000 strokes : 133.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4,00

# STARTING FUEL DELIVERY

Rated speed rpm : 100

: 8.70 rack travel mm : +- 0.20 Tolerance mm

Del. quantity

cm3/1000 strokes : 155.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm: 4.70 : +- 0.10

Tolerance mm Del. quantity

cm3/1000 strokes : 41.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.

: +- 5.00

Spreed

Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 02.05.90 : ISO-4113

Combination No. : 0 402 746 825

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...900PA878

: -5K

Governer no.

: 0 421 815 182

Cust. part No. : 313GC5173-P16

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor

: E C 6 350 4VH

Power KW : 261.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance \*C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0

Tolerance l/h: + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar

Tolerance bar : +- 1.5

: 1 680 750 008 Test lines

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 15.05

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 251.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00 Spreed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance cm3/1000S. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 5.00 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +-3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30 Tolerance mm : +- 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.20 Tolerance mm : +- 0.10

Rated speed rpm : 850

guide sleeve

travel mm : 6.00 Tolerance mm : +- 0.10

Rated speed rpm : 1000

auide sleeve

travel mm : 7.60
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever

position degree : -1

Rated speed rpm : 1130

Rack travel in mm : 10.00 Tolerance mm : +- 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

: 900

Rated speed rpm Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 251.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 60.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.0 Rated speed rpm : 1130

rack travel mm : 14.00
Rated speed rpm : 955.0
Tolerance 1/min : +- 5.0

rack travel mm : 4.00
Rated speed rpm : 1095.0
Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50

Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

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Rated speed rpm : 325 rack travel mm : 5.0

Rated speed rpm : 275

CRT mm min. : 6.60

Testing:

Rated speed rpm : 325 rack travel mm : 5.00 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 15.05 Tolerance mm : +- 0.05

Rated speed rpm : 625 rack travel mm : 15.45 Tolerance mm : +- 0.05

Rated speed rpm : 700 rack travel mm : 15.35 Tolerance mm : +- 0.05

Rated speed rpm : 500 rack travel mm : 7.50 Tolerance mm : +- 7.50

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 625
Pressure hPa : 1200
rack travel mm : 15.45
Tolerance mm : + 0.05

#### **MEASUREMENT**

Rated speed rpm : 625

rack travel mm : 8.50 Tolerance mm : +- 0.20

Pressure hPa : 280 rack travel mm : 10.45 Tolerance mm : +- 0.05

Pressure hPa : 650 rack travel mm : 13.50 Tolerance mm : +- 0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 275.50

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 132.50

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.50 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 150.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

## LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.00 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance : 8.0 Check tolerance cm3/1000s. : 12.0 : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02,05.90 : ISO-4113

Combination No. : 0 402 746 826

Injection pump

Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807

Governor

Governer design. : RQV325...875PA878

: -6K

Governer no.

: 0 421 815 183

Cust. part No. : 313GC5173-P20

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor

: EM6 250L 4VH

Power KW

: 186.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: ← 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h

: 165.0

Tolerance l/h:  $\leftarrow 5.0$ 

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

**B17** 

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: + 0.50

Check

tolerance \*NW

: +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm

: 875

Rack travel in mm : 10.85

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 164.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance cm3/1000s.: +- 4.00Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 Rated speed rpm : 325.0 Rack travel in mm : 4.60 Tolerance mm : + 0.10Del. quantity cm3/1000 strokes : 42.00 Tolerance cm3/1000 strokes : + 3.00Check tolerance cm3/1000s.: +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve travel mm : 1.30 : **←** 0.10 Tolerance mm Rated speed rpm : 450 guide sleeve : 3.00 travel mm : + 0.20Tolerance mm Rated speed rpm : 850 guide sleeve : 6.30 travel mm : +- 0.10Tolerance mm Rated speed rpm : 1000 guide sleeve : 7.80 travel mm Tolerance mm : + 0.10

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP : 875 Rated speed rpm Aneroid pressure : 1200 hPa Del. quantity cm3/1000 strokes : 164.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 CONTROL LEVER control lever position degree : 56.0 tolerance degree : +- 4.0 RATED SPEED : 9.80 rack travel mm Rated speed rpm : 930.0 Tolerance  $1/\min$ : +- 5.0 rack travel mm : 4.00 Rated speed rpm : 1025.0 Tolerance 1/min : + 15.0 rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1100 LOW IDLE control lever position degree : 13.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.6

Rated speed rpm : 275

GUIDE SLEEVE POSITION

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.60 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 10.85 Tolerance mm : +- 0.05

Rated speed rpm : 510 rack travel mm : 13.10 Tolerance mm : + 0.10

Rated speed rpm : 700 rack travel mm : 11.70 Tolerance mm : + 0.10

Rated speed rpm : 550 rack travel mm : 6.55 Tolerance mm : +- 6.55

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 1200
rack travel mm : 13.10
Tolerance mm : +- 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 8.80
Tolerance mm : +- 0.20

Pressure hPa : 215 rack travel mm : 10.35 Tolerance mm : + 0.05

Pressure hPa : 435 rack travel mm : 12.40 Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 243.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 148.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.80 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 165.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s :  $\leftarrow 30.00$ 

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.60
Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

ineck tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : U2.U5.YU : ISO-4113

Combination No. : 0 402 746 828

Injection pump

Pump designation : PES6P120A720RS7148 EP type number : 0 412 726 810

Governor

Governer design. : RQV325...875PA878

: -7K

: 0 421 815 184 Governer no.

Cust. part No. : 313GC5174-P4

Customer-spec. information

Customer : MACK TRUCKS INC.
Motor : EM6 300L 4VH

Power KW

224.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. L/h

: 165.0

Tolerance l/h: +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80
Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 7.00

Tolerance mm : + 1.00

Firing order : 1-5-3-6-2

: - 4

Phasing

: 0-60-120-180-240 : -300

Tolerance

: **←** 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 11.15

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : + 1.00

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Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 : 325.0 Rated speed rpm Rack travel in mm: 4.60 : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 42.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.30 travel mm : +- 0.10 Tolerance mm Rated speed rpm : 450 guide sleeve travel mm : 2.65 : +- 0.15 Tolerance mm Rated speed rpm : 600 guide sleeve travel mm : 4.20 Tolerance mm : + 0.10Rated speed rpm : 875 guide sleeve : 7.40 travel mm Tolerance mm : + - 0.10

: 1000

: 8.85

Tolerance mm : +-0.15GUIDE SLEEVE POSITION control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure hPa : 1500 Del. quantity cm3/1000 strokes : 200.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 59.0 tolerance degree : +- 4.0 RATED SPEED : 10.10 rack travel mm Rated speed rpm : 920.0 Tolerance 1/min : +- 5.0 rack travel mm : 4.00 Rated speed rpm : 1015.0 Tolerance 1/min : +- 15.0 rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1150 LOW IDLE control Lever position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm

guide sleeve

travel mm

Rated speed rpm : 325 rack travel mm : 4.6

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.50 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 875
rack travel mm : 11.15
Tolerance mm : + 0.05

Rated speed rpm : 510 rack travel mm : 16.60 Tolerance mm : + 0.10

Rated speed rpm : 700 rack travel mm : 13.40 Tolerance mm : + 0.10

Rated speed rpm : 600 rack travel mm : 15.60 Tolerance mm : + 0.10

Rated speed rpm : 450 rack travel mm : 8.30 Tolerance mm : + 8.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 1500
rack travel mm : 16.60
Tolerance mm : + 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 8.50
Tolerance mm : + 0.20

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : +- 0.05

Pressure hPa : 710

rack travel mm : 14.60 Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 302.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. :  $\leftarrow 6.00$ 

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 154.50

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.50 Tolerance mm : +0.20

Del. quantity

cm3/1000 strokes : 150.00

Tolerance

cm3/1000 strokes : +- 10.00

Check tolerance

cm3/1000s. : +- 15.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.60 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance cm3/1000s. : **←** 5.00

Spreed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 829

Injection pump

Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807

Governor

Governer design. : RQV325...1050PA848

: -8K

Governer no. : 0 421 815 185

Cust. part No. : 313GC5173P30

Customer-spec. information

Customer : MACK TRUCKS
Motor : E6-270 4VH

Power KW : 201.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity min. L/h : 165.0 Tolerance L/h : + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Firing order : 1-5-3-6-2

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.25 Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 175.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 4.00

**B25** 

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000S.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm: 5.00

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 41.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

: ← 5.00 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

: 1.50 travel mm : + 0.10Tolerance mm

Rated speed rpm : 450

guide sleeve

: 2.65 travel mm : +- 0.15 Tolerance mm

: 800 Rated speed rpm

auide sleeve

: 4.90 travel mm : + 0.10Tolerance mm

: 1050 Rated speed rpm

guide sleeve

: 7.45 travel mm : +- 0.15 Tolerance mm

Rated speed rpm : 1200

guide sleeve

: 9.50 travel mm : +- 0.10 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1 : 1210 Rated speed rpm

Rack travel in mm : 10.00 Tolerance mm : + 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure

hPa : 900

Del. quantity

cm3/1000 strokes : 175.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000S. : + 4.00

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000S.: 9.0

CONTROL LEVER

control lever

position degree : 59.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.0 Rated speed rpm : 1210

: 11.20 rack travel mm Rated speed rpm : 1095.0 Tolerance 1/min : +- 5.0

: 4.00 rack travel mm : 1185.0 Rated speed rpm

: +- 15.0 Tolerance 1/min

rack travel mm : 4.00

: 0.50 rack travel mm : +- 0.50 Tolerance mm Rated speed rpm : 1300

LOW IDLE

control lever

position degree : 14.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.0

Rated speed rpm : 275

CRT mm min. : 6.40

Testing:

Rated speed rpm : 325 rack travel mm : 5.00 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050 rack travel mm : 12.25 Tolerance mm : + 0.05

Rated speed rpm : 630 rack travel mm : 12.10 Tolerance mm : + 0.10

Rated speed rpm : 925 rack travel mm : 12.00 Tolerance mm : + 0.10

Rated speed rpm : 800 rack travel mm : 12.30 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 630
Pressure hPa : 900
rack travel mm : 12.05
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 630

rack travel mm : 8.80
Tolerance mm : +- 0.20

Pressure hPa : 270
rack travel mm : 9.65
Tolerance mm : + 0.05

Pressure hPa : 400 rack travel mm : 11.25 Tolerance mm : + 0.25

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 630

Del. quantity

cm3/1000 strokes : 195.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. :  $\leftarrow 6.00$ 

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 131.00

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.80 Tolerance mm : + 0.20

Del. quantity

cm3/1000 strokes : 155.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : + 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.00 Tolerance mm : +- 0.10

Del. quantity cm3/1000 strokes : 41.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s.: +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 836

Injection pump

Pump designation : PES6P12OA72ORS7157 EP type number : 0 412 726 814

Governor

Governer design. : RQV325...900PA848

: -12K

Governer no. : 0 421 815 192

Cust. part No. : 313GC5179-P18

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor : E7 400 4VH

Power KW : 298.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C :  $\leftarrow$  2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. l/h : 165.0 Tolerance l/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00
x Length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.55
Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 273.00

Tolerance

cm3/1000 strokes : +- 1.00

\_\_\_\_\_\_

Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm : 5.00 : + 0.10Tolerance mm Del. quantity cm3/1000 strokes : 46.00 Tolerance cm3/1000 strokes : + 3.00Check tolerance cm3/1000s. : + 5.00Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 quide sleeve : 1.45 travel mm : + 0.15Tolerance mm Rated speed rpm : 500 guide sleeve travel moi : 3.70 : **←** 0.30 Tolerance mm Rated speed rpm : 900 guide sleeve travel mm : 6.80 : + 0.10Tolerance mm Rated speed rpm : 1075 guide sleeve : 8.65 travel mm : +- 0.25 Tolerance mm

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 273.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 CONTROL LEVER control lever position degree : 60.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 14.50 Rated speed rpm : 945.0 Tolerance 1/min : +- 5.0 : 4.00 rack travel mm Rated speed rpm : 1130.0 Tolerance  $1/\min$  :  $\leftarrow$  15.0 rack travel mm : 0.50 Tolerance mm : +- 0.50 : 1250 Rated speed rpm LOW IDLE control lever position degree : 14.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.0

Rated speed rpm : 275

GUIDE SLEEVE POSITION

CRT mm min. : 1.50
Testing:

Rated speed rpm : 325 rack travel mm : 5.00 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 15.55 Tolerance mm : + 0.05

Rated speed rpm : 625 rack travel mm : 15.40 Tolerance mm : +- 0.10

Rated speed rpm : 500 rack travel mm : 7.30 Tolerance mm : +- 7.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 15.55
Tolerance mm : +- 0.05

**MEASUREMENT** 

Rated speed rpm : 900

rack travel mm : 8.40 Tolerance mm : +- 0.20

Pressure hPa : 225 rack travel mm : 9.45 Tolerance mm : + 0.05

Pressure hPa : 770 rack travel mm : 14.00 Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 280

Check

speed 1/min : 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 312.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 168.00

Tolerance

cm3/1000 strokes : - 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.10 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.00 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 46.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : → 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 02.05.90

Test oil

: ISO-4113

Combination No.

: 0 402 746 837

Injection pump

Pump designation : PES6P120A720RS7157

EP type number

: 0 412 726 814

Governor

Governer design. : RQV325...900PA848

: -15K

Governer no.

: 0 421 815 193

Cust. part No. : 313GC5179-P2

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor

: E7 350 4VH

Power KW

: 261.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance "C

: +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h

: 165.0

Tolerance 1/h

: + 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar :  $\leftarrow$  1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50

Tolerance mm :  $\leftarrow$  1.50

: 1-5-3-6-2 Firing order

Phasing : 0-60-120-180-240

: -300

Tolerance : +-0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.05 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 229.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm: 5.40 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 44.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance : +- 5.00 cm3/1000s.Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.45 travel mm : **←** 0.15 Tolerance mm : 500 Rated speed rpm guide sleeve : 3.70 travel mm : +- 0.30 Tolerance mm Rated speed rpm : 900 guide sleeve travel mm : 6.80 Tolerance mm : + 0.10: 1075 Rated speed rpm auide sleeve

> : 8.65 : +- 0.25

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 900 Aneroid pressure : 900 hPa Del. quantity cm3/1000 strokes : 229.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 60.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.00 Rated speed rpm : 955.0 Tolerance  $1/\min$ : + 5.0 rack travel mm : 4.00 Rated speed rpm : 1115.0 Tolerance 1/min : +- 15.0

rack travel mm : 4.00
Rated speed rpm : 1115.0
Tolerance 1/min : +- 15.0

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1250

#### LOW IDLE

control lever position degree : 14.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.4

Rated speed rpm : 275

travel mm

Tolerance mm

GUIDE SLEEVE POSITION

: 1.50 CRT mm min. Testing: Rated speed rpm : 325 : 5.40 rack travel mm : + 0.10Tolerance mm TORQUE CONTROL : 900 Rated speed rpm : 14.05 rack travel mm Tolerance mm : +- 0.05 Rated speed rpm : 625 rack travel mm : 13.90 Tolerance mm : + 0.10: 500 Rated speed rpm rack travel mm : 6.60 : +- 6.60 Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING : 900 Rated speed rpm

Pressure hPa : 900 rack travel mm : 14.05 : + 0.05Tolerance mm

**MEASUREMENT** 

Rated speed rpm : 900

: 9.00 rack travel mm Tolerance mm : +- 0.20

: 225 Pressure hPa : 10.25 rack travel mm Tolerance mm : +- 0.05

: 545 Pressure hPa : 12.90 rack travel mm Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 265

Check

speed 1/min : 275

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 900 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 263.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.: +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

: 400 Rated speed rpm

Del. quantity

cm3/1000 strokes : 168.00

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s.: +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 : 10.60 rack travel mm Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : + 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.40 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 44.00

Tolerance

Spreed

cm3/1000 strókes : +- 3.00

Check tolerance

: +- 5.00

cm3/1000s.

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000S.: 12.0

**CO7** 

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 838

Injection pump

Pump designation : PES6P120A720RS7157

EP type number : 0 412 726 814

Governor

Governer design. : RQV325...875PA848

: -14K

Governer no.

: 0 421 815 194

Cust. part No. : 313GC5179-P26

Customer-spec. information

Customer

: MACK

Motor

: EM7-250L 4VH

Power KW

: 187.0

# TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h

: 165.0

Tolerance 1/h

: +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

: 208.5

Tolerance bar

: +- 1.5

Test Lines

: 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 18.0

Tolerance bar : + 1.0

Prestroke mm : 2.80

Tolerance mm : +- 0.05

Check

: + - 0.10tolerance mm

Firing order : 1-5-3-6-2

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

tolerance "NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 10.45

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 175.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s.

: +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.: 9.0

Rated speed rpm : 325.0

Rack travel in mm: 4.80

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.: <del>+-</del> 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

: 1.45 travel mm : + 0.15Tolerance mm

Rated speed rpm : 500

guide sleeve

: 3.70 travel mm : + 0.30Tolerance mm

Rated speed rpm : 900

guide sleeve

travel mm : 6.80 : + 0.10Tolerance mm

Rated speed rpm : 1075

auide sleeve

: 8.65 travel mm Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875

Aneroid pressure

hPa : 900

Del. quantity

cm3/1000 strokes : 175.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.: +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

: 9.0 cm3/1000s.

CONTROL LEVER

control lever

position degree : 58.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.40 Rated speed rpm : 920.0 Tolerance 1/min : +- 5.0

rack travel mm : 4.00 : 1035.0 Rated speed rpm Tolerance 1/min : +- 15.0

rack travel mm : 0.50 Tolerance mm : +- 0.50

Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 16.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8

: 275 Rated speed rpm

CRT mm min. : 6.30 Testing:

Rated speed rpm : 325 rack travel mm : 4.80 Tolerance mm : + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 875
rack travel mm : 10.45
Tolerance mm : + 0.05

Rated speed rpm : 510
rack travel mm : 12.00
Tolerance mm : + 0.10

Rated speed rpm : 450 rack travel mm : 5.90 Tolerance mm : +- 5.90

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 900
rack travel mm : 12.00
Tolerance mm : + 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 8.00 Tolerance mm : + 0.20

Pressure hPa : 235
rack travel mm : 8.85
Tolerance mm : + 0.05

Pressure hPa : 485 rack travel mm : 11.00 Tolerance mm : +- 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 247.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 153.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.20 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 839

Injection pump

Pump designation : PES6P120A720RS7148 EP type number : 0 412 726 810

Governor

Governer design. : RQV325...875PA848

: -19K

Governer no.

: 0 421 815 199

Cust. part No. : 313GC5179-P6

Customer-spec. information

Customer : MACK

Motor

: EM7 300L 4VH

Power KW

: 224.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: + 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h

: 165.0

Tolerance l/h: +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +1.5

Test lines : 1 680 750 008

**C13** 

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 7.00

Tolerance mm : + 1.00

Firing order : 1-5-3-6-2

: - 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 11.55

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 211.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.60 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 44.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

MILL GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30 Tolerance mm : +- 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 2.65
Tolerance mm : + 0.15

Rated speed rpm : 600

guide sleeve

travel mm : 4.20 Tolerance mm : +- 0.10

Rated speed rpm : 875

guide sleeve

travel mm : 7.40
Tolerance mm : +- 0.10

Rated speed rpm : 1000

guide sleeve

travel mm : 8.85

Tolerance mm : +- 0.15

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 211.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 61.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 920.0
Tolerance 1/min : + 5.0

rack travel mm : 4.00
Rated speed rpm : 1015.0
Tolerance 1/min : +- 15.0

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1150

LOW IDLE

control lever

position degree : 12.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

: 325 Rated speed rpm rack travel mm : 4.6

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.60 Tolerance mm : + 0.10

TORQUE CONTROL

: 875 Rated speed rpm rack travel mm : 11.55 Tolerance mm : **←** 0.05

Rated speed rpm : 510 rack travel mm : 16.10 Toterance mm : + 0.10

Rated speed rpm : 800 : 12.10 rack travel mm : + 0.10Tolerance mm

: 600 Rated speed rpm rack travel mm : 15.20 Tolerance mm : +- 0.10

Rated speed rpm : 450 : 7.85 rack travel mm : +- 7.85 Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

: 510 Rated speed rpm : 1200 Pressure hPa rack travel mm : 16.10 : +- 0.10 Tolerance mm

**MEASUREMENT** 

: 510 Rated speed rpm

: 8.90 rack travel mm Tolerance mm : +- 0.20

Pressure hPa : 325 rack travel mm : 10.65 Tolerance mm : +- 0.05

Pressure hPa : 815 rack travel mm : 14.50 : +- 0.20 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 297.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 168.00

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.90 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 175.00

Tolerance

cm3/1000 strokes : +- 10.00

Check tolerance

cm3/1000s. : +- 20.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.60 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 44.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s.

: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 840

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...875PA848

: -18K

Governer no.

: 0 421 815 198

Cust. part No. : 313GC5173-P32

Customer-spec. information

Customer : MACK

Motor

: EMC6 250L 4VH

Power KW

: 187.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C :  $\div$  2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

**C17** 

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar  $: \leftarrow 1.0$ 

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

Firing order

tolerance mm : + 0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

: 1-5-3-6-2

Phasing : 0-60-120-180-240

: -300

Tolerance : +-0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 11.25

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 174.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance : +- 4.00 cm3/1000s.Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000S.: 9.0 Rated speed rpm : 325.0 Rack travel in mm: 4.60 : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 42.00 Tolerance cm3/1000 strokes : + 3.00Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000S.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.30 travel mm : + 0.10Tolerance mm Rated speed rpm : 450 guide sleeve : 3.00 travel mm : +- 0.20 Tolerance mm : 850 Rated speed rpm guide sleeve : 6.30 travel mm : + 0.10Tolerance mm : 1000 Rated speed rpm guide sleeve : 7.80 travel mm : +- 0.10 Tolerance mm GUIDE SLEEVE POSITION

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 174.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 CONTROL LEVER control lever position degree : 58.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 10.20 : 920.0 Rated speed rpm Tolerance  $1/\min$ : + 5.0 rack travel mm : 4.00 Rated speed rpm : 1025.0 Tolerance 1/min : +- 15.0 rack travel mm : 0.50 : +- 0.50 Tolerance mm : 1100 Rated speed rpm LOW IDLE control lever position degree : 13.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.6

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.60 : + - 0.10Tolerance mm

TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 11.25 Tolerance mm : +- 0.05

: 510 Rated speed rpm : 13.20 rack trayel mm Tolerance mm : + 0.10

Rated speed rpm : 700 rack travel mm : 12.10 Tolerance mm : +- 0.10

Rated speed rpm : 450 rack travel mm : 6.55 Tolerance mm : +- 6.55

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510 rack travel mm : 13.20
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 510

rack travel mm : 9.30 : +- 0.20 Tolerance mm

: 215 Pressure hPa rack travel mm : 10.35 : +- 0.05 Tolerance mm

: 435 Pressure hPa rack travel mm : 12.40 Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 1200 hPa Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 242.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : + 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 148.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s.: +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 9.30 Tolerance mm : <del>+-</del> 0.20

Del. quantity

cm3/1000 strokes : 180.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s.: +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm: 4.60 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 842

Injection pump

Pump designation : PES6P120A720RS7164 EP type number : 0 412 726 816

Governor

Governer design. : RQV325...875PA848

: -17K

Governer no.

: 0 421 815 200

Cust. part No. : 313GC5181P14

Customer-spec. information

Customer : MACK TRUCKS

Motor

: EMC6 300L 4VH

Power KW

: 200.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h

: 165.0

Tolerance L/h

: +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar

: +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

: 2.80 : +- n Prestroke mm

Tolerance mm Check

: +- 0.05

tolerance mm

: +- 0.10

Rack travel in mm: 12.50 Tolerance mm :  $\leftarrow 0.50$ 

Firing order

: 1-5-3-6-2

: - 4

Phasing

: 0-60-120-180-240

: -300

Toterance

: + 0.50

Check

tolerance \*NW

: + 0.75

Start of delivery mark

Barrel no.

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 14.95

Tolerance mm

: +- 0.05

Del. quantity

cm3/1000 strokes : 226.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.: +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm: 4.80

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

: 1.30 travel mm : +- 0.10 Tolerance mm

: 450 Rated speed rpm

guide sleeve

travel mm : 3.20

Tolerance mm : +- 0.20

Rated speed rpm : 850

auide sleeve

travel mm : 6.00 Tolerance mm : + 0.10

Rated speed rpm : 1000

auide sleeve

travel mm : 7.55 : +- 0.15 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 226.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 58.0 tolerance degree : +- 4.0

RATED SPEED

: 13.90 rack travel mm Rated speed rpm : 920.0 Tolerance  $1/\min$ : +- 5.0

rack travel mm : 4.00 Rated speed rpm : 1080.0 Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : +- 0.50 : 1160 Rated speed rpm

LOW IDLE

control lever

position degree : 14.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8 Rated speed rpm : 275

CRT mm min. : 5.90

Testing:

Rated speed rpm : 325 rack travel mm : 4.80 Tolerance mm : +- 0.10

rack travel imm : 2.00

TORQUE CONTROL

Rated speed rpm : 875
rack travel mm : 14.95
Tolerance mm : + 0.05

Rated speed rpm : 510 rack travel mm : 17.00 Tolerance mm : + 0.10

Rated speed rpm : 700 rack travel mm : 15.80 Tolerance mm : +- 0.10

Fated speed rpm : 600 rack travel mm : 16.70 Tolerance mm : + 0.10

Rated speed rpm : 420 rack travel mm : 8.40 Tolerance mm : +- 8.40

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 1200
rack travel mm : 17.00
Tolerance mm : + 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 11.10
Tolerance mm : +- 0.20

Pressure hPa : 375
rack travel mm : 12.75
Tolerance mm : +- 0.05

Pressure hPa : 735 rack travel mm : 15.90

Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 310.00

Tolerance

cm3/1000 strokes : +-3.00

Check tolerance

cm3/1000s. :  $\leftarrow 6.00$ 

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 158.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 11.10

Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 180.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 846

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...850PA848

: -23K

Governer no.

: 0 421 815 204

Cust. part No. : 313GC5184-P6

Customer-spec. information

Customer : MACK TRUCKS

Motor

: E6 300 4VH

Power KW

: 224.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h :  $\leftarrow$  5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar  $: \leftarrow 1.5$ 

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar :  $\leftarrow$  1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm:  $\leftarrow 0.10$ 

Firing order : 1-5-3-6-2 : - 4

Phasing

: 0-60-120-180-240

: -300 : +- 0.50

Tolerance

Check

tolerance \*NW

: **←** 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.95

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 201.00

Tolerance

cm3/1000 strokes : +-1.00

Check tolerance

cm3/1000s. : +- 4.00

C25

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm: 4.60 : +- 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

: + 5.00 cm3/1000s.

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

: 1.30 travel mm Tolerance mm : + 0.10

Rated speed rpm : 450

guide sleeve

: 2.95 travel mm : +- 0.15 Tolerance mm

: 850 Rated speed rpm

guide sleeve

: 6.30 travel mm : + 0.10Tolerance mm

: 1000 Rated speed rpm

quide sleeve

: 7.80 travel mm : +- 0.10 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure

: 900 hPa

Del. quantity cm3/1000 strokes : 201.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

: +- 4.00 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

: 9.0 cm3/1000s.

CONTROL LEVER

control lever

position degree : 54.0 tolerance degree : +- 4.0

RATED SPEED

: 11.90 rack travel mm Rated speed rpm : 905.0 Tolerance  $1/\min$ : +- 5.0

rack travel mm : 4.00 Rated speed rpm : 1040.0 Tolerance 1/min : + 15.0

rack travel mm : 4.00

rack travel mm : 0.50 : **←** 0.50 Tolerance mm Rated speed rpm : 1100

LOW IDLE

control lever

position degree : 11.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.6

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.60 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 12.95
Tolerance mm : + 0.05

Rated speed rpm : 700 rack travel mm : 13.65 Tolerance mm : + 0.05

Rared speed rpm : 600 rack travel mm : 13.85 Tolerance mm : + 0.05

Rated speed rpm : 500 rack travel mm : 6.80 Tolerance mm : + 6.80

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 13.85
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 600

rack travel mm : 10.40
Tolerance mm : + 0.10

Pressure hPa : 250
rack travel mm : 11.25
Tolerance mm : + 0.05

Pressure hPa : 475 rack travel mm : 13.10 Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 240.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 156.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.40 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 215.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.60 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 847

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...850PA878

: -8K

Governer no.

: 0 421 815 205

Cust. part No. : 313GC5184-P8

Customer-spec. information

Customer : MACK TRUCKS

Motor

: E6 300 4VH

Power KW

: 224.0

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly

: 1 688 991 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : +-0.10

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance

: + -0.50

Check

tolerance \*NW

: + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm

: 850

Rack travel in mm : 12.95

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 201.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.

: + 4.00

D01

Spreed

Tolerance

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm: 4.60 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

: → 5.00 cm3/1000s.

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

: 325 Rated speed rpm

guide sleeve

: 1.30 travel mm : +- 0.10 Tolerance mm

: 450 Rated speed rpm

quide sleeve

: 2.95 travel mm

Tolerance mm : + 0.15

Rated speed rpm : 850

guide sleeve

travel mm : 6.30 : + 0.10Tolerance mm

: 1000 Rated speed rpm

guide sleeve

travel mm : 7.80

: + 0.10Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree

cm3/1000 strokes : 5.0

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure

hPa : 900

Del. quantity

cm3/1000 strokes : 201.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.: +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.: 9.0

CONTROL LEVER

control lever

position degree : 54.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.90 : 905.0 Rated speed rpm Tolerance 1/min : +- 5.0

rack travel mm : 4.00 Rated speed rpm : 1040.0 : +- 15.0 Tolerance 1/min

rack travel mm : 4.00

: 0.50 rack travel mm Tolerance mm : +- 0.50 : 1100 Rated speed rpm

LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

: 325 Rated speed rpm rack travel mm : 4.6

Rated speed rpm : 275

002

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.60 Tolerance mm : + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 850 rack travel mm : 12.95 Tolerance mm : +- 0.05

Rated speed rpm : 700 rack travel mm : 13.65 Tolerance mm : + 0.05

Rated speed rpm : 600 rack travel mm : 13.85 Tolerance mm : + 0.05

Rated speed rpm : 500 rack travel mm : 6.80 Tolerance mm : +- 6.80

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 13.85
Tolerance mm : +- 0.05

**MEASUREMENT** 

Rated speed rpm : 600

rack travel mm : 10.40
Tolerance mm : + 0.10

Pressure hPa : 250 rack travel mm : 11.25 Tolerance mm : +- 0.05

Pressure hPa : 475
rack travel mm : 13.10
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 240.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 156.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.40 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 215.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +-30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.60 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 848

Injection pump

Fump designation : PES6P12UA72URS7135 EP type number : 0 412 726 807

Governor

Governer design. : RQV325...900PA878

: -9%

Governer no. : 0 421 815 206

Cust. part No. : 313GC5184-P12

Customer-spec. information

Customer : MACK TRUCKS INC.

Motor : E6-350 Power KW : 261.0

### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : + 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. L/h : 165.0 Tolerance L/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 008

est tilles : 1 000 750 00

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 600

### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.85
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 249.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

005

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm: 5.00 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.0G

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000S.: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

: 1.30 travel mm : + 0.10Tolerance mm

Rated speed rpm : 450

guide sleeve

: 3.20 travel mm : + 0.10Tolerance mm

Rated speed rpm : 850

auide sleeve

travel mm : 6.00 Tolerance mm : + 0.10

Rated speed rpm : 1000

guide sleeve

travel mm : 7.60 : + 0.10Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

: 900 Rated speed rpm

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 249.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 60.0 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.80 Rated speed rpm : 955.0 Tolerance  $1/\min$ :  $\leftarrow$  5.0

: 4.00 rack travel mm Rated speed rpm : 1090.0 Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.0

Rated speed rpm : 275

D06

CRT mm min. : 6.60

Testing:

Rated speed rpm : 325 : 5.00 rack travel mm : + 0.10Tolerance mm

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 14.85 Tolerance mm : +- 0.05

Rated speed rpm : 625 : 15.25 rack travel mm Tolerance mm : +- 0.05

: 700 Rated speed rpm : 15.05 rack travel mm Tolerance mm 

Rated speed rpm : 500 : 7.45 rack travel mm : +- 7.45 Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 625 : 1200 Pressure hPa rack travel mm : 15.25 : +- 0.05 Tolerance mm

**MEASUREMENT** 

Rated speed rpm : 625

rack travel mm : 8.50 : + 0.20Tolerance mm

: 310 Pressure hPa rack travel mm : 10.25 : +- 0.05 Tolerance mm

Pressure hPa : 710 : 13.90 rack travel mm : + 0.20Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 274.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s.: 12.

: 400 Rated speed rpm

Del. quantity

cm3/1000 strokes : 132.50

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

: 100 Rated speed rpm rack travel mm : 8.50 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 150.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

: +- 30.00 cm3/1000s.

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.00 Tolerance mm : +- 0.10

Del. quantity cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.: **←** 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 849

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...850PA878

: -10K

Governer no. : 0 421 815 209

Cust. part No. : 313GC5184-P4

Customer-spec. information

Customer : MACK\_TRUCKS

Motor

: E6 275 4VH

Power KW

: 202.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +-0.10

Firing order

: 1-5-3-6-2

: - 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance \*NW

: **←** 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.95

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 184.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 4.00

009

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.60

: **←** 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

: 325 Rated speed rpm

quide sleeve

: 1.30 travel mm Tolerance mm : + 0.10

Rated speed rpm : 450

guide sleeve

: 2.95 travel mm : +- 0.15 Tolerance mm

Rated speed rpm : 850

guide sleeve

travel mm : 6.30

: **←** 0.10 Tolerance mm

Rated speed rpm : 1000

guide sleeve

travel mm : 7.80

: + 0.10Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure

: 900 hPa

Del. quantity

cm3/1000 strokes : 184.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 54.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.90 Rated speed rpm : 905.0

Tolerance  $1/\min$ : +-5.0

rack travel mm : 4.00 Rated speed rpm : 1040.0 Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : +- 0.50 Rated speed rpm : 1100

LOW IDLE

control lever

position degree : 11.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.6

Rated speed rpm : 275

D10

CRT mm min. : 1.50 Testing: : 325 Rated speed rpm rack travel mm : 4.60 Tolerance mm : + 0.10: 2.00 rack travel mm TORQUE CONTROL : 850 Rated speed rpm rack travel mm : 11.95 Tolerance mm : +- 0.05 Rated speed rpm : 700 rack travel mm : 12.85 : +- 0.05 Tolerance mm Rated speed rpm : 600 rack travel mm : 13.05 Tolerance mm : +- 0.05 Rated speed rpm : 500 rack travel mm : 6.40 Tolerance mm : +- 6.40 ANEROID/ALTITUDE COMPENSATOR TEST SETTING : 600 Rated speed rpm Pressure hPa : 900 : 13.05 rack travel mm : +- 0.05Tolerance mm **MEASUREMENT** Rated speed rpm : 600

: 10.40

: 225

: 385

: 12.40

: +- 0.20

: 11.05 : +- 0.05

: + 0.10

Aneroid pressure hPa : 900 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 222.50 Tolerance cm3/1000 strokes : +- 3.00 Check tolerance cm3/1000s. : +- 6.00 Spreed Tolerance cm3/1000 strokes : 8.00 Check tolerance cm3/1000s. : 12. Rated speed rpm : 400 Del. quantity cm3/1000 strokes : 156.00 Tolerance cm3/1000 strokes : +- 2.00Check tolerance cm3/1000s. : +- 4.00 STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel mm : 10.40 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 215.00

LOW IDLE

Tolerance

cm3/1000s.

Check tolerance

Rated speed rpm : 325.0

Rack travel in mm : 4.60
Tolerance mm : +- 0.10

cm3/1000 strokes : +- 20.00

: +- 30.00

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

FUEL DELIVERY CHARACTERISTICS

rack travel mm Tolerance mm

Pressure hPa

Tolerance mm

Pressure hPa

Tolerance mm

rack travel mm

rack travel mm

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 850

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...900PA848

: --24K

: 0 421 815 207 Governer no.

Cust. part No. : 313GC5184-P10

Customer-spec. information

Customer : MACK TRUCKS INC.

: E6-350 Motor Power KW : 261.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

: +- 0.10 tolerance mm

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.85 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 249.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

013

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 5.00 Tolerance mm : +-0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

: - 5.00 cm3/1000s.

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

auide sleeve

: 1.30 travel mm Tolerance mm : + 0.10

: 450 Rated speed rpm

guide sleeve

: 3.20 travel mm Tolerance mm : +- 0.10

Rated speed rpm : 850

quide sleeve

travel mm : 6.00 Tolerance mm : +- 0.10

Rated speed rpm : 1000

guide sleeve

travel mm : 7.60 : +- 0.10 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity cm3/1000 strokes : 249.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 60.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.80 Rated speed rpm : 955.0 Tolerance  $1/\min$ : +- 5.0

rack travel mm : 4.00 Rated speed rpm : 1090.0 Tolerance  $1/\min$  : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.0

Rated speed rpm : 275

D14

CRT mm min. : 6.60

Testing:

Rated speed rpm : 325 : 5.00 rack travel mm : + 0.10Tolerance mm

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 14.85 : +- 0.05 Tolerance mm

: 625 Rated speed rpm : 15.25 rack travel mm Tolerance mm : +- 0.05

: 700 Rated speed rpm rack travel mm : 15.05 : +- 0.05Tolerance mm

Rated speed rpm : 500 : 7.45 rack travel mm Tolerance mm : +- 7.45

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

: 625 Rated speed rpm : 1200 Pressure hPa : 15.25 rack travel mm : +- 0.05 Tolerance mm

**MEASUREMENT** 

Rated speed rpm : 625

rack travel mm : 8.50 : + 0.20Tolerance mm

Pressure hPa : 310 : 10.25 rack travel mm Tolerance mm : +- 0.05

: 710 Pressure hPa : 13.90 rack travel mm Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 274.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s.: 12.

: 400 Rated speed rpm

Del. quantity

cm3/1000 strokes : 132.50

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

: 100 Rated speed rpm rack travel mm : 8.50 Tolerance mm : + 0.20

Del. quantity

cm3/1000 strokes : 150.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

: + 30.00cm3/1000s.

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.00 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02,05,90 : ISO-4113

Combination No. : 0 402 746 851

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

Governer design. : RQV325...850PA848

: -25K

Governer no.

: 0 421 815 208

Cust. part No. : 313GC5184-P2

Customer-spec. information

Customer : MACK TRUCKS

Motor

: E6 275 4VH

Fower KW

: 202.0

### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C : + 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar

: +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

x length mm : 600

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80
Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Firing order : 1-5-3-6-2

Phasing

: 0-60-120-180-240

: -300 : +- 0.50

Tolerance Check

tolerance \*NW

: + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.95

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 184.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.

: +- 4.00

Spreed

D17

Tolerance cm3/1000 strokes : 5.0 Check tolerance : 9.0 cm3/1000s. : 325.0 Rated speed rpm Rack travel in mm: 4.50 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 35.00 Tolerance cm3/1000 strokes : +-3.00Check tolerance cm3/1000s.: +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL : 325 Rated speed rpm guide sleeve : 1.30 travel mm : + - 0.10Tolerance mm : 450 Rated speed rpm guide sleeve : 2.95 travel mm : + 0.15Tolerance mm Rated speed rpm : 850 guide sleeve : 6.30 travel mm Tolerance mm : +- 0.10 Rated speed rpm : 1000 quide sleeve travel mm : 7.80 : +- 0.10Tolerance mm GUIDE SLEEVE POSITION control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850 Aneroid pressure hPa : 900 Del. quantity cm3/1000 strokes : 184.00 Tolerance cm3/1000 strokes : +- 1.00 Check tolerance cm3/1000s. : +- 4.60 **beerg** Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 54.0 tolerance degree : +- 4.0 RATED SPEED : 10.90 rack travel mm Rated speed rpm : 905.0 : +- 5.0 Tolerance 1/min : 4.00 rack travel mm : 1035.0 Rated speed rpm Tolerance 1/min : +- 15.0 rack travel mm : 4.00 rack travel am : 0.50 Tolerance mm : **←** 0.50 : 1100 Rated speed rpm LOW IDLE control lever position degree : 11.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 325 rack travel mm Rated speed rpm : 275

CRT mm min.

Testing:

: 1.50

Rated speed rpm : 325 rack travel mm : 4.50 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 11.95
Tolerance mm : + 0.05

Rated speed rpm : 700 rack travel mm : 12.60 Tolerance mm : + 0.10

Rated speed rpm : 600 rack travel mm : 13.00 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 6.40 Tolerance mm : + 6.40

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 13.05
Tolerance mm : +- 0.05

**MEASUREMENT** 

Rated speed rpm : 600

rack travel mm : 10.10
Tolerance mm : +- 0.20

Pressure hPa : 225 rack travel mm : 11.05 Tolerance mm : +- 0.05

Pressure hPa : 385 rack travel mm : 12.40 Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 600 Del. quantity

cm3/1000 strokes : 222.50

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed

Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 156.00

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.10 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 215.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.50 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 35.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s : +-5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

D19

### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 852

Injection pump

Pump designation : PES6P12DA72ORS7157 EP type number : 0 412 726 814

Governor

Governer design. : RQV325...900PA909K Governer no. : 0 421 815 210

Cust. part No. : 313GC5185-P6

Customer-spec. information

Customer : MACK TRUCKS

Motor : E7-400 Power KW : 298.0

# TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h : 165.0 Tolerance L/h : ← 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80
Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow 0.50$ 

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.85
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 276.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

: 9.0 cm3/1000s.

Rated speed rpm : 325.0

Rack travel in mm: 5.20

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

quide sleeve

: 1.30 travel mm Tolerance mm : + 0.10

Rated speed rpm : 450

guide sleeve

: 3.00 travel mm Tolerance mm : + 0.20

Rated speed rpm : 650

guide sleeve

travel mm : 5.70 Tolerance mm : + 0.10

Rated speed rpm : 900

quide sleeve

travel mm : 8.40 Tolerance mm : +- 0.10

: 1100 Rated speed rpm

guide sleeve

travel mm : 10.55 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 276.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 62.0 tolerance degree : + 4.0

RATED SPEED

: 14.80 rack travel mm Rated speed rpm : 945.0 Tolerance  $1/\min$ : + 5.0

: 4.00 rack travel mm Rated speed rpm : 1120.0 Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50 Tolerance mm : +- 0.50 : 1200 Rated speed rpm

LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 : 5.2 rack travel mm

Rated speed rpm : 275

CRT mm min. : 6.30

Testing:

Rated speed rpm : 325 rack travel mm : 5.20 Tolerance mm : + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 15.85 Tolerance mm : + 0.05

Rated speed rpm : 625 rack travel mm : 15.30 Tolerance mm : + 0.10

Rated speed rpm : 700 rack travel mm : 15.50 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 6.75 Tolerance mm : + 6.75

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 15.85
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 900

rack travel mm : 8.70 Tolerance mm : +- 0.20

Pressure hPa : 325
rack travel mm : 10.25
Tolerance mm : +- 0.05

Pressure hPa : 790
rack travel mm : 14.00
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 305.50

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 159.50

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 11.10 Tolerance mm : +- 0.30

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +-30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.20 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +-3.00

Check tolerance cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

: 12.0 cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 02.05.90 : ISO-4113 Test oil

Combination No. : 0 402 746 853

Injection pump

Pump designation : PES6P120A720RS7157

EP type number : 0 412 726 814

Governor

Governer design. : RQV325...900PA909

: -1K

: 0 421 815 211 Governer no.

Cust. part No. : 313GC5185-P2

Customer-spec. information

Customer : MACK TRUCKS

Motor : E7-350 : 261.0 Power KW

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. l/h : 165.0 Tolerance l/h : ← 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +-0.10

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

: + 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.65

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 232.00

Tolerance

cm3/1000 strokes : +-1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30 Tolerance mm : + 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.00 Tolerance mm : +- 0.20

Rated speed rpm : 650

guide sleeve

travel mm : 5.70 Tolerance mm : +- 0.10

Rated speed rpm : 900

guide sleeve

travel mm : 8.40 Tolerance mm : +- 0.10

Rated speed rpm : 1100

guide sleeve

travel mm : 10.55
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 232.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 62.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.60 Rated speed rpm : 945.0 Tolerance 1/min : +- 5.0

rack travel mm : 4.00
Rated speed rpm : 1095.N
Tolerance 1/min : +- 15.0

rack travel mm : 4.00

 $\begin{array}{lll} \text{rack travel mm} & : 0.50 \\ \text{Tolerance mm} & : + 0.50 \\ \end{array}$ 

Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8

Rated speed rpm : 275

CRT mm min. : 5.90

Testing:

Rated speed rpm : 325 rack travel mm : 4.80 Tolerance mm : 4-0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 13.65 Tolerance mm : + 0.05

Rated speed rpm : 625 rack travel num : 13.40 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 6.00 Tolerance mm : ← 6.00

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 13.65
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 900

rack travel mm : 8.20 Tolerance mm : + 0.20

Pressure hPa : 325 rack travel mm : 9.45 Tolerance mm : + 0.05

Pressure hPa : 685 rack travel mm : 12.30 Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 266.00

Tolerance

cm3/1000 strokes :  $\leftarrow 3.00$ 

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity cm3/1000 strokes : 155.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.60 Tolerance mm : +- 0.30

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +-3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 01.02.90

Test oil

: ISO-4113

Combination No. : 0 402 746 856

Injection pump

Pump designation: PES6P130A320LS7173

EP type number : 0 412 736 802

Governor

Governer design. : RQV300...750PA914

Governer no. : 0 421 813 747

Cust. part No. :

Customer-spec. information

Customer

: SSCM

Motor

: UD25-L6

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: +- 2.0

Overflow valve

: 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde

assembly

: 0 681 443 022

Opening pressure

bar

: 173.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 060

Outside diameter : 8.00

x inside diameter: 4.00

x length mm : 1000

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 26.0

Tolerance bar : +- 1.0

Prestroke mm : 2.85

Tolerance mm

: +- 0.05

Check

tolerance mm

: + 0.10

Rack travel in mm : 10.50

Tolerance mm

: +- 1.50

Firing order

: 1-4-2-6-3

: - 5

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance °NW

: +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm

: 750

Rack travel in mm : 12.35

Tolerance mm

: +- 0.05

Del. quantity

cm3/1000 strokes : 481.50

Tolerance

cm3/1000 strokes : +- 1.50

Check tolerance

cm3/1000s.

: +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s.

: 10.0

Rated speed rpm : 300.0

Rack travel in mm: 5.00

Tolerance mm : + 0.30

Del. quantity

cm3/1000 strokes : 50.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

: + 7.00cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 10.0

Check tolerance

: 14.0 cm3/1000S.

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

: 300 Rated speed rpm

quide sleeve

: 1.30 travel mm

: +- 0.20 Tolerance mm

Rated speed rpm : 600

auide sleeve

: 5.40 travel mm

: +- 0.30 Tolerance mm

: 750 Rated speed rpm

guide sleeve

: 7.80 travel mm

: + 0.10Tolerance mm

: 1000 Rated speed rpm

guide sleeve

: 11.50 travel mm

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever

: -1 position degree

: 800 Rated speed rpm

Rack travel in mm : 16.50

Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Del. quantity

cm3/1000 strokes : 481.50

Tolerance

cm3/1000 strokes : +- 1.50

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 10.0

CONTROL LEVER

control lever

position degree : 122.0 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 16.5 Rated speed rpm : 800

rack travel mm : 11.30 Rated speed rpm : 795.0 Tolerance  $1/\min$ :  $\leftarrow 5.0$ 

rack travel mm : 4.00 Rated speed rpm : 855.0 Tolerance 1/min : +- 15.0

rack travel mm : 4.00

LOW IDLE

control lever

position degree : 65.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 300 : 5.0 rack travel mm

Rated speed rpm : 100

CRT mm min. : 6.50

Testing:

Rated speed rpm : 300 rack travel mm : 5.00 Tolerance mm : +- 0.30

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 750 rack travel mm : 12.35 Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 300.0

Rack travel in mm : 5.00 Tolerance mm : + 0.30

Del. quantity

cm3/1000 strokes : 50.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. :  $\leftarrow$  7.00

Spreed Tolerance

cm3/1000 strokes : 10.0

Check tolerance

cm3/1000s. : 14.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 02.05.90 Edition : ISO-4113 Test oil

Combination No. : 0 402 746 861

Injection pump

Pump designation : PES6P120A720RS7183 EP type number : 0 412 726 825

Governor

Governer design. : RQV325...875PA848

: -26K

: 0 421 815 212 Governer no.

Cust. part No. : 313GC5174-P6

Customer-spec. information

Customer : MACK TRUCKS Motor : EM 6-300L

Power KW : 183.0

TEST BENCH REQUIREMENTS

Test oil inlet

: 40.0 temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. L/h : 165.0 Tolerance L/h : ← 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 008 Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar  $: \leftarrow 1.0$ 

Prestroke mm : 2.80 Tolerance mm : +- 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 7.00 Tolerance mm : + 1.00

: 1-5-3-6-2 Firing order

: 0-60-120-180-240 Phasing

: -300

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 11.25 Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 210.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance : +- 4.00 cm3/1000s.Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 : 325.0 Rated speed rpm Rack travel in mm : 4.80 : + 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 44.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance cm3/1000S. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000S.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL : 325 Rated speed rpm guide sleeve : 1.30 travel mm : + 0.10Tolerance mm : 450 Rated speed rpm auide sleeve : 2.65 travel mm Tolerance mm : +- 0.15 : 600 Rated speed rpm auide sleeve travel mm : 4.20 : +- 0.10 Tolerance mm Rated speed rpm : 875 guide sleeve : 7.00 travel mm : + 0.10Tolerance mm Rated speed rpm : 1000

: 8.40

Tolerance mm : +-0.20GUIDE SLEEVE POSITION control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure : 1500 hPa Del. quantity cm3/1000 strokes : 210.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000S.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 59.0 tolerance degree : +- 4.0 RATED SPEED : 10.20 rack travel mm Rated speed rpm : 920.0 Tolerance 1/min : +- 5.0 rack travel mm : 4.00 : 1015.0 Rated speed rpm Tolerance 1/min : +- 15.0 rack travel mm : 4.00 rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1150 LOW IDLE

control lever

position degree : 14.0 tolerance degree : +- 4.0

guide sleeve

travel mm

Setting point w/out bumper spring

: 325 Rated speed rpm rack travel mm : 4.8

: 275 Rated speed rpm

CRT mm min. : 6.30

Testing:

Rated speed rpm : 325 : 4.80 rack travel mm : + 0.10Tolerance mm

: 2.00 rack travel mm

TORQUE CONTROL

: 875 Rated speed rpm : 11.25 rack travel mm : **←** 0.05 Tolerance mm

: 510 Rated speed rpm : 16.70 rack travel mm Tolerance mm : **←** 0.10

: 700 Rated speed rpm : 13.30 rack travel mm : + 0.10Tolerance mm

Rated speed rpm : 600 rack travel mm : 15.40 : +- 0.20 Tolerance mm

: 420 Rated speed rpm rack travel mm : 8.30 : +- 8.30 Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510 Pressure hPa : 1500 : 16.70 rack travel mm : + - 0.10Tolerance mm

**MEASUREMENT** 

: 510 Rated speed rpm

: 8.90 rack travel mm : + 0.20 Tolerance mm

Pressure hPa : 435

: 10.90 rack travel mm Tolerance mm : + -0.10

Pressure hPa : 795 rack travel mm : 14.80 : +- 0.20 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 1500 : 510 Rated speed rpm

Del. quantity

cm3/1000 strokes : 311.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : + 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

: 400 Rated speed rpm

Del. quantity

cm3/1000 strokes : 156.00

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.90 Tolerance mm : +- 0.20

Del. quantity cm3/1000 strokes : 160.00

Tolerance

cm3/1000 strokes : +- 10.00

Check tolerance

: +- 15.00 cm3/1000s.

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm: 4.80 Tolerance mm :  $\leftarrow$  0.10

Del. quantity cm3/1000 strokes : 44.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 862

Injection pump

Pump designation : PES6P120A720RS7183

EP type number : 0 412 726 825

Governor

Governer design. : RQV325...875PA878

: -11K

Governer no. : 0 421 815 213

Cust. part No. : 313GC5174-P8

Customer-spec. information

Customer : MACK TRUCKS Motor : EM 6-300L

Power KW : 183.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 7.00 Tolerance mm : +- 1.00

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 11.25
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 210.00

Tolerance

cm3/1000 strokes : +- 1.00

E08

Check tolerance : +- 4.00 cm3/1000s. Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm : 4.70 Tolerance mm : + - 0.10Del. quantity cm3/1000 strokes : 44.00 Tolerance cm3/1000 strokes : + 3.00Check tolerance : + 5.00cm3/1000s.Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL : 325 Rated speed rpm guide sleeve : 1.30 travel mm : + 0.10Tolerance mm : 450 Rated speed rpm guide sleeve travel mm : 2.65 : + 0.15Tolerance mm : 600 Rated speed rpm quide sleeve : 4.20 travel mm : + 0.10Tolerance mm Rated speed rpm : 875 auide sleeve travel mm : 7.40 : + 0.10Tolerance mm Rated speed rpm : 1000 guide sleeve

: 8.85

Tolerance mm : + 0.15 GUIDE SLEEVE POSITION control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP : 875 Rated speed rpm Aneroid pressure : 1500 hPa Del. quantity cm3/1000 strokes : 210.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 CONTROL LEVER control lever position degree : 59.0 tolerance degree : +- 4.0 RATED SPEED : 10.20 rack travel mm Rated speed rpm : 920.0 Tolerance  $1/\min$ :  $\leftarrow$  5.0 rack travel mm : 4.00 Rated speed rpm : 1015.0 Tolerance  $1/\min$ : + 15.0 rack travel mm : 4.00 rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1150 LOW IDLE control lever

position degree

tolerance degree : + 4.0

: 14.0

travel mm

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.7

Rated speed rpm : 275

CRT mm min. : 6.30

Testing:

Rated speed rpm : 325 rack travel mm : 4.70 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 11.25 Tolerance mm : + 0.05

Rated speed rpm : 510 rack travel mm : 16.70 Tolerance mm : +- 0.10

Rated speed rpm : 700 rack travel mm : 13.40 Tolerance mm : + 0.10

Rated speed rpm : 600 rack travel mm : 15.60 Tolerance mm : + 0.10

Rated speed rpm : 450 rack travel mm : 8.30 Tolerance mm : + 8.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 1500
rack travel mm : 16.70
Tolerance mm : + 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 8.90
Tolerance mm : + 0.20

Pressure hPa : 435

rack travel mm : 10.90 Tolerance mm : +- 0.10

Pressure hPa : 795
rack travel mm : 14.80
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 311.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. :  $\leftarrow$  6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 156.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.90 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 185.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 25.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.70 Tolerance mm : +- 0.10

Del. quantity cm3/1000 strokes : 44.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 866

Injection pump

Pump designation : PES6P120A720RS7157

EP type number : 0 412 726 814

Governor

Governer design. : RQV325...875PA909

: -2K

Governer no. : 0 421 815 217

Cust. part No. : 313GC5185-P10

Customer-spec. information

Customer : MACK TRUCKS Motor : EM7-300L

Power KW : 224.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. l/h : 165.0 Tolerance l/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 18.0
Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 12.65

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 212.00

Tolerance

cm3/1000 strokes : + 1.00

is/ tood strokes . F- 1.00

Check tolerance

cm3/1000s. : + 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

: 325.0 Rated speed rpm

Rack travel in mm : 4.90

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.: +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

: 325 Rated speed rpm

guide sleeve

: 1.30 travel mm : + 0.10Tolerance mm

: 450 Rated speed rpm

guide sleeve

: 3.00 travel mm

: + 0.20 Tolerance mm

: 650 Rated speed rpm

guide sleeve

: 5.70 travel mm : + 0.10Tolerance mm

: 900

Rated speed rpm

guide sleeve

: 8.40 travel mm : + 0.10Tolerance mm

: 1100

Rated speed rpm

guide sleeve

: 10.55 travel mm : +- 0.25 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875

Aneroid pressure

: 1200

Del. quantity

cm3/1000 strokes : 212.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : + 3.00

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

: 61.0 position degree

tolerance degree : +- 4.0

RATED SPEED

: 11.60 rack travel mm Rated speed rpm : 920.0

Tolerance 1/min : +- 5.0

: 4.00 rack travel mm

: 1065.0 Rated speed rpm

Tolerance 1/min : +- 15.0

: 4.00 rack travel mm

rack travel mm : 0.50

: +- 0.50 Tolerance mm

: 1200 Rated speed rpm

LOW IDLE

control lever

position degree : 11.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.9 :

Rated speed rpm : 275

CRT mm min. : 6.00

Testing:

Rated speed rpm : 325 rack travel mm : 4.90 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 875
rack travel mm : 12.65
Tolerance mm : + 0.05

Rated speed rpm : 510
rack travel mm : 13.70
Tolerance mm : + 0.10

Rated speed rpm : 400 rack travel mm : 6.50 Tolerance mm : +- 6.50

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 1200
rack travel mm : 13.65
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 8.30
Tolerance mm : + 0.20

Pressure hPa : 370 rack travel mm : 9.55 Tolerance mm : +- 0.05

Pressure hPa : 740
rack travel mm : 12.50
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 294.50

Tolerance

cm3/1000 strokes : +-2.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 159.50

Tolerance

cie 3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.70 Tolerance mm : +- 0.30

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. :  $\leftarrow 30.00$ 

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.90 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance cm3/1000s. : <del>+-</del> 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s.

: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 06.03.90 Test oil : ISO-4113

Combination No. : 0 402 746 867

Injection pump

Pump designation : PES6P12DA72DRS7164 EP type number : 0 412 726 816

Governor

Governer design. : RQV325...900PA848

: -27K

Governer no. : 0 421 815 218

Cust. part No. : 313GC5181P10

Customer-spec. information

Customer : MACK TRUCKS Motor : EC6-350 4VH

Power KW : 261.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : + 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 12.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300 Tolerance : + 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow 0.75$ 

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 16.05

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 256.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 : 325.0 Rated speed rpm Rack travel in mm : 4.40 : + 0.10Tolerance infi Del. quantity cm3/1000 strokes : 42.00 Tolerance cm3/1000 strokes :  $\leftarrow 3.00$ Check tolerance : +- 5.00 cm3/1000s. Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.30 travel mm : + 0.10 Tolerance mm : 450 Rated speed rpm guide sleeve travel mm : 3.20 : +- 0.20 Tolerance mm : 850 Rated speed rpm auide sleeve : 6.00 travel mm Tolerance mm : + 0.10: 1000 Rated speed rpm guide sleeve : 7.60 travel mm : + 0.20Tolerance mm

control lever : -1 position degree FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 900 Aneroid pressure : 1200 hPa Del. quantity cm3/1000 strokes : 256.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance : 9.0 cm3/1000s. CONTROL LEVER control lever : 59.0 position degree tolerance degree : + 4.0 RATED SPEED : 15.00 rack travel mm Rated speed rpm : 955.0 Tolerance  $1/\min$ : + 5.0 rack travel mm : 4.00 Rated speed rpm : 1120.0 Tolerance 1/min : +- 15.0 rack travel mm : 4.00 rack travel mm : 0.50 **:** ← 0.50 Tolerance mm Rated speed rpm : 1200 LOW IDLE

control lever

position degree : 14.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.4

GUIDE SLEEVE POSITION

Rated speed rpm : 275

CRT mm min. : 5.90

Testing:

Rated speed rpm : 325 rack travel mm : 4.40 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 16.05 Tolerance mm : + 0.05

Rated speed rpm : 625 rack travel mm : 16.60 Tolerance mm : + 0.10

Rated speed rpm : 550 rack travel mm : 8.20 Tolerance mm : + 8.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 625
Pressure hPa : 1200
rack travel mm : 16.60
Tolerance mm : + 0.10

**MEASUREMENT** 

Rated speed rpm : 625

rack travel mm : 9.60 Tolerance mm : ← 0.20

Pressure hPa : 265
rack travel mm : 11.35
Tolerance mm : + 0.05

Pressure hPa : 665 rack travel mm : 14.90 Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 283.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 143.50

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 9.60 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 155.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.00

Check tolerance

cm3/1000s. :  $\leftarrow 30.00$ 

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.40 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.05.90 : ISO-4113 Test oil

Combination No. : 0 402 746 868

Injection pump

Pump designation : PES6P120A720RS7164 : 0 412 726 816 EP type number

Governor

Governer design. : RQV325...875PA848

: -28K

: 0 421 815 219 Governer no.

Cust. part No. : 313GC5181P6

Customer-spec. information

Customer : MACK TRUCKS : EM6-275L 4VH Motor

Power KW : 205.0

TEST BENCH REQUIREMENTS

Test oil inlet

: 40.0 temp. °C Tolerance °C : +- 2.0

: 2 417 413 011 Overflow valve

Inlet press. bar : 1.50

Overflow quantity

min. L/h : 165.0 : +- 5.0 Tolerance L/h

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

: 1 680 750 008 Test lines

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +1.0

Prestroke mm : 2.80 : +- 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 12.50 Tolerance mm : +-0.50

Firing order : 1-5-3-6-2

Phasing : 0-60-120-180-240

: -300

: + - 0.50Tolerance

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm: 13.65 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 194.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance : +- 3.00 cm3/1000s. Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 : 325.0 Rated speed rpm Rack travel in mm: 4.90 Tolerance mm : +- 0.20 Del. quantity cm3/1000 strokes : 42.00 Tolerance cm3/1000 strokes :  $\leftarrow$  3.00 Check tolerance : +- 5.00 cm3/1000s.Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL : 325 Rated speed rpm guide sleeve : 1.30 travel mm : + 0.10Tolerance mm Rated speed rpm : 450 guide sleeve : 2.95 travel mm Tolerance mm : + 0.15Rated speed rpm : 850 guide sleeve : 6.30 travel mm : +- 0.10Tolerance mm : 1000 Rated speed rpm guide sleeve : 7.80 travel mm : + 0.10Tolerance mm

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP : 875 Rated speed rpm Aneroid pressure : 1200 hPa Del. quantity cm3/1000 strokes : 194.00 Tolerance cm3/1000 strokes : +- 1.00 Check tolerance cm3/1000s. : +- 3.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000S.: 9.0 CONTROL LEVER control lever position degree : 61.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 12.60 Rated speed rpm : 920.0 Tolerance  $1/\min$ : +-5.0rack travel mm : 4.00 Rated speed rpm : 1060.0 Tolerance 1/min : +- 15.0 rack travel mm : 4.00 rack travel mm : 0.50 : + 0.50Tolerance mm Rated speed rpm : 1150

#### LOW IDLE

control lever

position degree : 14.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.9

GUIDE SLEEVE POSITION

Rated speed rpm : 275

CRT mm min. : 6,20

Testing:

Rated speed rpm : 325 rack travel mm : 4.90 : <del>+-</del> 0.20 Tolerance mm

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 13.65 Tolerance mm : +- 0.05

: 510 Rated speed rpm rack travel mm : 15.50 : + 0.10Tolerance mm

: 750 Rated speed rpm : 14.05 rack travel mm : + 0.15Tolerance mm

Rated speed rpm : 600 : 15.20 rack travel mm : + 0.10Tolerance mm

Rated speed rpm : 420 rack travel mm : 7.60 : +- 7.60 Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510 Pressure hPa : 1200 rack travel mm : 15.50 : + 0.10Tolerance mm

**MEASUREMENT** 

Rated speed rpm : 510

: 10.90 rack travel mm : +- 0.20 Tolerance mm

Pressure hPa : 265 : 12.15 rack travel mm : + 0.05 Tolerance mm

: 450 Pressure hPa : 14,40 rack travel mm

Tolerance mm : +-0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 1200 : 510 Rated speed rpm

Del. quantity cm3/1000 strokes : 264.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

: +- 5.00 cm3/1000s.

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 154.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.90 Tolerance mm : + 0.20

Del. quantity

cm3/1000 strokes : 205.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm: 4.90 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00 Spreed

Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s.

: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 868AA

Injection pump

Pump designation : PES6P120A720RS7164 EP type number : 0 412 726 816

Governor

Governer design. :

Governer no. : 0 421 815 ...

Cust. part No. : 313GC...

Customer-spec. information

Customer : MACK\_TRUCKS : EM6-275L 4VH Motor

: 205.0 Power KW

TEST BENCH REQUIREMENTS

Test oil inlet

: 40.0 temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

: 165.0 min. 1/h min. l/h : 165.0 Tolerance i/h : + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 12.50 Tolerance mm : +-0.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance "NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm: 13.65 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 197.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance : + 3.00cm3/1000s. Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm: 4.90 : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 42.00 Tolerance  $cm3/1000 \text{ strokes} : \leftarrow 3.00$ Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.25 travel mm : + 0.15Tolerance mm Rated speed rpm : 450 guide sleeve travel mm : 2.05 : + 0.15Tolerance mm Rated speed rpm : 850 guide sleeve : 6.50 travel mm : + 0.20

: 1000

: 9.70

: +- 0.20

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure : 1200 hPa Del. quantity cm3/1000 strokes : 197.00 Tolerance cm3/1000 strokes : +- 1.00 Check tolerance cm3/1000s.: +- 3.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 CONTROL LEVER control lever position degree : 62.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 920.0 Tolerance  $1/\min$ : + 5.0 : 4.00 rack travel mm Rated speed rpm : 975.0 Tolerance 1/min : +- 15.0 rack travel mm : 4.00 rack travel mm : 0.50 : +- 0.50 Tolerance mm Rated speed rpm : 1050 LOW IDLE control lever position degree : 14.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm

Tolerance mm

guide sleeve

Tolerance mm

travel mm

Rated speed rpm

GUIDE SLEEVE POSITION

Rated speed rpm : 275

CRT mm min. : 6.30

Testing:

Rated speed rpm : 325 rack travel mm : 4.90 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 13.65 Tolerance mm : +- 0.05

Rated speed rpm : 510 rack travel mm : 15.30 Tolerance mm : + 0.10

Rated speed rpm : 750 rack travel mm : 14.05 Tolerance mm : +- 0.15

Rated speed rpm : 420 rack travel mm : 7.60 Tolerance mm : +- 7.60

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510

Pressure hPa : 1200

rack travel mm : 15.30

Tolerance mm : + 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 10.90 Tolerance mm : +- 0.20

Pressure hPa : 265 rack travel mm : 12.15 Tolerance mm : +- 0.05

Pressure hPa : 450 rack travel mm : 14.20 Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 262.50

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 154.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.90 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 205.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.90 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 869

Injection pump

Pump designation : PES6P120A720RS7164 EP type number : 0 412 726 816

Governor

Governer design. : RQV325...875PA848

: -29K

Governer no. : 0 421 815 220

Cust. part No. : 313GC5181P4

Customer-spec. information

Customer : MACK TRUCKS
Motor : EMC6 250L 4VH

Power KW : 196.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 12.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 13.05
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 185.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance : + 3.00cm3/1000s. Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 Rated speed rpm : 325.0 Rack travel in mm : 4.80 : + 0.10Tolerance mm Del. quantity cm3/1000 strokes : 42.00 Tolerance cm3/1000 strokes : + 3.00Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.30 travel mm : +- 0.10 Tolerance mm Rated speed rpm : 450 quide sleeve travel mm : 3.00 : +- 0.20 Tolerance mm Rated speed rpm : 850 guide sleeve : 6.30 travel mm : +- 0.10 Tolerance mm : 1000 Rated speed rpm guide sleeve : 7.80 travel mm : + - 0.10Tolerance mm GUIDE SLEEVE POSITION

control lever position degree : -1 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 875 Aneroid pressure : 900 Del. quantity cm3/1000 strokes : 185.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s. : +- 3.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s : 9.0 CONTROL LEVER control lever position degree : 59.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 12.00 Rated speed rpm : 920.0 Tolerance 1/bin : + 5.0 rack travel mm : 4.00 Rated speed rpm : 1050.0 Tolerance 1/min : +- 15.0 rack travel mm : 4.00 rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1150 LOW IDLE control lever position degree : 14.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8 Rated speed rpm : 275

CRT mm min. : 5.90

Testing:

Rated speed rpm : 325 rack travel mm : 4.80 Tolerance mm : + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 875
rack travel mm : 13.05
Tolerance mm : ÷ 0.05

Rated speed rpm : 510 rack travel mm : 15.00 Tolerance mm : + 0.10

Rated speed rpm : 650 rack travel mm : 14.05 Tolerance mm : + 0.15

Rated speed rpm : 450 rack travel mm : 7.35 Tolerance mm : +- 7.35

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 510
Pressure hPa : 900
rack travel mm : 15.00
Tolerance mm : +- 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 10.60
Tolerance mm : +- 0.20

Pressure hPa : 205 rack travel mm : 11.75 Tolerance mm : + 0.05

Pressure hPa : 460 rack travel mm : 14.10 Tolerance mm : + 0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 255.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 154.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

## STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.60
Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 180.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. :  $\leftarrow 30.00$ 

### LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02,05,90 : ISO-4113

Combination No. : 0 402 746 870

Injection pump

Pump designation : PES6P120A720RS7157

EP type number : 0 412 726 814

Governor

Governer design. : RQV325...875PA878

: -14K

Governer no.

: 0 421 815 222

Cust. part No. : 313GC5179-P28

Customer-spec. information

Customer : MACK

Motor

: EM7-250L 4VH

Power KW

: 187.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: **←** 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. l/h : 165.0 Tolerance l/h : ← 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

DEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80Tolerance mm : +0.05

Check

tolerance mm : +- 0.10

Firing order

: 1-5- 3- 6- 2 : - 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance °NW

: +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm: 10.45

Tolerance mm

: +- 0.05

Del. quantity

cm3/1000 strokes : 175.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.

: +- 4.00

Spreed

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.80

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

: +- 5.00 cm3/1000s.

Spreed

Tolerance cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

: 1.45 travel mm Tolerance mm : + 0.15

Rated speed rpm : 500

guide sleeve

travel mm : 3.70 : + 0.30Tolerance mm

Rated speed rpm : 900

guide sleeve

: 6.80 travel mm Tolerance mm : + 0.10

: 1075 Rated speed rpm

auide sleeve

: 8.65 travel mm : +- 0.25 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875

Aneroid pressure

hPa : 900

Del. quantity

cm3/1000 strokes : 175.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 58.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.40 Rated speed rpm : 920.0 Tolerance 1/min : +- 5.0

rack travel mm : 4.00

Rated speed rpm : 1035.0 Tolerance 1/min : +- 15.0

rack travel mm : 0.50

Tolerance mm : +- 0.50 Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 16.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8

Rated speed rpm : 275

CRT mm min. : 6.30

Testing:

Rated speed rpm : 325 rack travel mm : 4.80 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 10.45 Tolerance mm : +- 0.05

Rated speed rpm : 510 rack travel mm : 12.00 Tolerance mm : + 0.10

Rated speed rpm : 450 rack travel mm : 5.90 Tolerance mm : +- 5.90

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 900
rack travel mm : 12.00
Tolerance mm : +- 0.10

**MEASUREMENT** 

Rated speed rpm : 510

rack travel mm : 8.00 Tolerance mm : +- 0.20

Pressure hPa : 235 rack travel mm : 8.85 Tolerance mm : +- 0.05

Pressure hPa : 485 rack travel mm : 11.00 Tolerance mm : +- 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 247.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 153.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.20 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. :  $\leftarrow 5.00$ 

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02,05,90 Test oil : ISO-4113

Combination No. : 0 402 746 871

Injection pump

Pump designation : PES6P120A720RS7157

EP type number : 0 412 726 814

Governor

Governer design. : RQV325...900PA929K

Governer no. : 0 421 815 223

Cust. part No. : 313GC5185-P8

Customer-spec. information

Customer : MACK TRUCKS

: E7-400 Motor Power KW : 298.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

: 40.0 temp. °C Tolerance °C : 4- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h : 165.0 Tolerance L/h:  $\leftarrow 5.0$ 

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : + 1.0

: 2.80 Prestroke mm Tolerance mm : +- 0.05

Check

: +~ 0.10 tolerance mm

Firing order : 1-5-3-6-2

: - 4

: 0-60-120-180-240 Phasing

: -300 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.85 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 276.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

: +- 4.00 cm3/1000s.

Spreed

F08

cm3/1000 strokes : 5.0

Check tolerance cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm: 5.20 Tolerance mm: +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cin3/1000 strokes : - 3.00

Check tolerance

cm3/1000s. :  $\leftarrow 5.00$ 

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

# (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30
Tolerance mm : +- 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.00 Tolerance mm : +- 0.20

Rated speed rpm : 650

guide sleeve

travel mm : 5.70 Tolerance mm : +- 0.10

Rated speed rpm : 900

guide sleeve

travel mm : 8.40 Tolerance mm : +- 0.10

Rated speed rpm : 1100

guide sleeve

travel mm : 10.55
Tolerance mm : +- 0.25

## GUIDE SLEEVE POSITION

control lever

position degree : -1

## FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 276.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : + 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

#### CONTROL LEVER

control lever

position degree : 62.0 tolerance degree : +- 4.0

## RATED SPEED

rack travel mm : 14.80
Rated speed rpm : 945.0
Tolerance 1/min : +- 5.0

rack travel mm : 4.00
Rated speed rpm : 1120.0
Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1200

## LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.2

Rated speed rpm : 275

CRT mm min. : 6.30

Testing:

Rated speed rpm : 325 rack travel mm : 5.20 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 15.85 Tolerance mm : +- 0.05

Rated speed rpm : 625 rack travel mm : 15.30 Tolerance mm : +- 0.10

Rated speed rpm : 700
rack travel mm : 15.50
Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 6.75 Tolerance mm : + 6.75

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 15.85
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 900

rack travel mm : 8.70
Tolerance mm : + 0.20

Pressure hPa : 325 rack travel mm : 10.25 Tolerance mm : + 0.05

Pressure hPa : 790
rack travel mm : 14.00
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 625

Del. quantity

cm3/1000 strokes : 305.50

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strckes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 159.50

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 11.10 Tolerance mm : +- 0.30

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +-30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.20 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 872

Injection pump

Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814

Governor

Governer design. : RQV325...900PA929

: -1K

Governer no.

: 0 421 815 224

Cust. part No. : 313GC5185-P4

Customer-spec. information

Customer : MACK TRUCKS

Motor

: E7-350

Power KW

: 261.0

## TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

÷ 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h

: 165.0

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x Length mm : 600

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance \*NW

: + 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 13.65

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 232.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s.

: <del>+-</del> 3.00

Spreed

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm: 4.80 Tolerance mm : **←** 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s.: +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

: 325 Rated speed rom

quide sleeve

: 1.30 travel mm Tolerance mm : + 0.10

Rated speed rpm : 450

guide sleeve

: 3.00 travel mm Tolerance mm : + 0.20

Rated speed rpm : 650

guide sleeve

: 5.70 travel mm Tolerance mm : + 0.10

Rated speed rpm : 900

guide sleeve

: 8.40 travel mm Tolerance mm : + 0.10

Rated speed rpm : 1100

guide sleeve

: 10.55 travel mm : +- 0.25 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 232.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : **←** 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 62.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.60 Rated speed rpm : 945.0

Tolerance  $1/\min$ : +-5.0

rack travel mm : 4.00 : 1095.0 Rated speed rpm

Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50

: + 0.50Tolerance mm : 1200 Rated speed rpm

LOW IDLE

control lever

position degree : 11.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 4.8 Rated speed rpm : 275

CRT mm min. : 5.90

Testina:

Rated speed rpm : 325 Rated speed ...
rack travel mm : 4.00
: + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 13.65 Tolerance mm : +- 0.05

: 625 Rated speed rpm rack travel mm : 13.40 : +- 0.10 Tolerance mm

: 500 Rated speed rpm rack travel mm : 6.00 Tolerance mm : +- 6.00

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900 Pressure hPa : 1200 : 13.65 rack travel mm : +- 0.05 Tolerance mm

**MEASUREMENT** 

Rated speed rpm : 900

rack travel mm : 8.20 Tolerance mm : +- 0.20

: 325 Pressure hPa rack travel mm : 9.45 : +- 0.05 Tolerance mm

Pressure hPa : 685 rack travel mm : 12.30 Tolerance mm : +- 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 1200 hPa : 625 Rated speed rpm

Del. quantity cm3/1000 strokes : 266.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 155.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.60 : +- 0.30 Tolerance mm

Del. quantity

cm3/1000 strokes : 190.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm: 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0 : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 873

Injection pump

Pump designation : PES6P12OA72ORS7157 EP type number : 0 412 726 814

Governor

Governer design. : RQV325...875PA929

: -2K

Governer no. : 0 421 815 225

Cust. part No. : 313GC5185-P12

Customer-spec. information

Customer : MACK TRUCKS
Motor : EM7-300L
Power KW : 224.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 18.0 Tolerance bar : +- 1.0

Prestroke sm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm: +- 1.50

Firing order : 1- 5- 3- 6- 2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +-0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 12.65 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 212.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

: +- 3.00 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm: 4.90

Tolerance mm :  $\leftarrow 0.10$ 

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000S.: 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30 Tolerance mm : +- 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.00 : +- 0.20 Tolerance mm

: 650 Rated speed rpm

guide sleeve

: 5.70 travel mm Tolerance mm : + 0.10

: 900 Rated speed rpm

guide sleeve

: 8.40 travel mm : +- 0.10 Tolerance mm

Rated speed rpm : 1100

guide sleeve

: 10.55 travel mm Tolerance mm : +- 0.25 GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

: 875 Rated speed rpm

Aneroid pressure

: 1200

Del. quantity

cm3/1000 strokes : 212.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 61.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.60 Rated speed rpm : 920.0

Tolerance 1/min : +- 5.0

rack travel mm : 4.00 Rated speed rpm : 1065.0

Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : +-0.50

Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 11.0

tolerance degree : +- 4.0

# Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.9

Rated speed rpm : 275

CRT mm min. : 6.00

#### Testing:

Rated speed rpm : 325 rack travel mm : 4.90 Tolerance mm : + 0.10

rack travel nm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 875 rack travel mm : 12.65 Tolerance mm : + 0.05

Rated speed rpm : 510 rack travel mm : 13.70 Tolerance mm : + 0.10

Rated speed rpm : 400 rack travel mm : 6.50 Tolerance mm : +- 6.50

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 510
Pressure hPa : 1200
rack travel mm : 13.70
Tolerance mm : + 0.10

#### **MEASUREMENT**

Rated speed rpm : 510

rack travel mm : 8.30 Tolerance mm : + 0.20

Pressure hPa : 370 rack travel mm : 9.55 Tolerance mm : + 0.05

Pressure hPa : 740
rack travel mm : 12.50
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 294.50

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 159.50

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.70 Tolerance mm : + 0.30

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +-30.00

## LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.90 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance cm3/1000 strokes : +- 3.00

Check tolerance cm3/1000s. : +- 5.00

Spreed

Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 02.05.90 Test oil : ISO-4113

Combination No. : 0 402 746 874

Injection pump

Pump designation : PES6P120A720RS7157

EP type number : 0 412 726 814

Governor

Governer design. : RQV325...850PA909

: -3K

: 0 421 815 230 Governer no.

Cust. part No. : 313GC5185-P14

Customer-spec. information

Customer : MACK TRUCKS

: E7-300 Motor

Power KW : 220.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance \*C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h : 165.0 Tolerance L/h : +- 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar :  $\leftarrow 1.5$ 

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Firing order : 1-5-3-6-2

: 0-60-120-180-240 Phasing

: -300

: +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.25

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 205.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : <del>+-</del> 3.00

Spreed

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000S. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30
Tolerance mm : +- 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.00 Tolerance mm : +- 0.20

Rated speed rpm : 650

guide sleeve

travel mm : 5.70 Tolerance mm : +- 0.10

Rated speed rpm : 900

guide sleeve

travel mm : 8.40 Tolerance mm : +- 0.10

Rated speed rpm : 1100

guide sleeve

travel mm : 10.55
Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 205.00

157 1000 SCIORES . 205

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000S. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 55.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.20
Rated speed rpm : 895.0
Tolerance 1/min : +- 5.0

rack travel mm : 4.00 Rated speed rpm : 1045.0 Tolerance 1/min : + 15.0

rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1150

LOW IDLE

control lever

position degree : 9.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8

Rated speed rpm : 275

CRT mm min. : 6.10

Testing:

Rated speed rpm : 325
rack travel mm : 4.80
Tolerance mm : + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 850 rack travel mm : 12.25 Tolerance mm : + 0.05

Rated speed rpm : 600 rack travel mm : 12.50 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 5.55 Tolerance mm : +- 5.55

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1200
rack travel mm : 12.50
Tolerance mm : + 0.10

**MEASUREMENT** 

Rated speed rpm : 600

rack travel mm : 7.90 Tolerance mm : + 0.20

Pressure hPa : 265 rack travel mm : 9.05 Tolerance mm : + 0.05

Pressure hPa : 565 rack travel mm : 11.40 Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 244.00

Tolerance

cm3/1000 strokes : +-3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 150.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.30 Tolerance mm : + 0.30

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

**LOW IDLE** 

Rated speed rpm : 325.0

Rack travel in mm : 4.80
Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 875

Injection pump

Pump designation : PES6P120A720RS7157

EP type number : 0 412 726 814

Governor

Governer design. : RQV325...975PA909

: -48

Governer no.

: 0 421 815 231

Cust. part No. : 313GC5185-P18

Customer-spec. information

Customer : MACK TRUCKS

Motor

: E7-300A

Power KW

: 224.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h

: 165.0

Tolerance 1/h

: +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar

: +- 1.5

Test Lines

: 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.

Tolerance mm : +- 0.05

Check

tolerance mm : **←** 0.1û

Firing order : 1-5-3-6-2

: - 4

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 12.35

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 202.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.

: +- 3.00

Spreed

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes :  $\leftarrow 3.00$ 

Check tolerance

cm3/1000s. :  $\leftarrow 5.00$ 

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275

quide sleeve

travel mm : 0.75 Tolerance mm : + 0.25

Rated speed rpm : 325

guide sleeve

travel mm : 1.60Tolerance mm :  $\leftarrow 0.10$ 

Rated speed rpm : 450

quide sleeve

travel mm : 3.10 Tolerance mm : + 0.20

Rated speed rpm : 1000

guide sleeve

travel mm : 8.50 Tolerance mm : + 0.10

Rated speed rpm : 1200

guide sleeve

travel mm : 10.40 Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 975

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 202.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm:3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 58.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.30 Rated speed rpm : 1020.0

Tolerance  $1/\min$ : +5.0

rack travel mm : 4.00
Rated speed rpm : 1160.0
Tolerance 1/min : +- 15.0

rack travel mm : 4.00

 $\begin{array}{lll} \text{rack travel mm} & : 0.50 \\ \text{Tolerance mm} & : + 0.50 \end{array}$ 

Rated speed rpm : 1250

LOW IDLE

control lever

position degree : 12.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8

Rated speed rpm : 275

CRT mm min. : 6.10

Testing:

Rated speed rpm : 325 rack travel mm : 4.80 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 975 rack travel mm : 12.35 Tolerance mm : +- 0.05

Rated speed rpm : 600 rack travel mm : 11.80 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 5.75 Tolerance mm : + 5.75

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 975
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 975

rack travel mm : 7.90 Tolerance mm : +- 0.20

Pressure hPa : 235 rack travel mm : 9.05 Tolerance mm : +- 0.05

Pressure hPa : 460 rack travel mm : 11.00 Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 224.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 148.00

Tolerance

cm3/1000 strokes :  $\leftarrow 2.00$ 

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.30 Tolerance mm : + 0.30

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80
Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 876

Injection pump

Pump designation : PES6P120A720RS7157

EP type number

: 0 412 726 814

Governor

Governer design. : RQV325...850PA929

: -3K

Governer no.

: 0 421 815 232

Cust. part No. : 313GC5185-P16

Customer-spec. information

Customer : MACK TRUCKS

Motor

: E7-300 4VH

Power KW

: 220.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h

: 165.0

Tolerance 1/h

: +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

har

: 208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm

: 2.80

Tolerance mm

: +- 0.05

Check

tolerance mm

: +- 0.10

Firing order

: 1-5-3-6-2

; - 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance \*NW

: +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.25

Tolerance mm

; <del>---</del> 0.05

Del. quantity

cm3/1000 strokes : 205.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.

: <del>- 3.00</del>

Spreed

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. :  $\leftarrow 5.00$ 

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30 Tolerance mm : +- 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.00 Tolerance mm : \to 0.20

Rated speed rpm : 650

guide sleeve

travel mm : 5.70 Tolerance mm : + 0.10

Rated speed rpm : 900

guide sleeve

travel mm : 8.40 Tolerance mm : +- 0.10

Rated speed rpm : 1100

guide sleeve

travel mm : 10.55
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 205.00

Tolerance

cn3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 55.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.20
Rated speed rpm : 895.0

Tolerance 1/min : + 5.0

rack travel mm : 4.00 Rated speed rpm : 1055.0

Tolerance  $1/\min$ : +15.0

rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50

Rated speed rpm : 1150

LOW IDLE

control lever

position degree : 11.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8

Rated speed rpm : 275

CRT mm min. : 6.30

Testing:

Rated speed rpm : 325 rack travei mm : 4.80 Tolerance mm : + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 850 rack travel mm : 12.25 Tolerance mm : + 0.05

Rated speed rpm : 600 rack travel mm : 12.60 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 5.55 Tolerance mm : + 5.55

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1200
rack travel mm : 12.60
Tolerance mm : +- 0.10

**MEASUREMENT** 

Rated speed rpm : 600

rack travel mm : 7.90
Tolerance mm : +- 0.20

Pressure hPa : 265 rack travel mm : 9.05 Tolerance mm : + 0.05

Pressure hPa : 565 rack travel mm : 11.40 Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 244.00

Tolerance

cm3/1000 strokes : +-3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 150.00

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.30 Tolerance mm : +-0.30

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. :  $\leftarrow 30.00$ 

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. :  $\leftarrow 5.00$ 

Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.

: 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 01.02.90 Test oil : ISO-4113

Combination No. : 0 402 746 877

Injection pump

Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814

Governor

Governer design. : RQV325...975PA929

: -4K

Governer no. : 0 421 815 233

Cust. part No. : 313GC5185-P20

Customer-spec. information

Customer : MACK TRUCKS
Motor : E7-300A
Power KW : 224.0

# TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 600

# **REMARKS**

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.05 Check

tolerance mm : + 0.10

Firing order : 1- 5- 3- 6- 2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 12.35
Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 202.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. :  $\leftarrow 3.00$ 

Spreed

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.80 : +- 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s.: +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275

guide sleeve

: 0.75 travel mm : ← 0.25 Tolerance mm

Rated speed rpm : 325

guide sleeve

: 1.60 travel mm : + 0.10 Tolerance mm

: 450 Rated speed rpm

guide sleeve

: 3.10 travel mm : +- 0.20 Tolerance mm

: 1000 Rated speed rpm

guide sleeve

: 8.50 travel mm : +- 0.10 Tolerance mm

: 1200 Rated speed rpm

guide sleeve

: 10.40 travel mm : + 0.20 Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

: 975 Rated speed rpm

Aneroid pressure

: 1200

Del. quantity

cm3/1000 strokes : 202.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 58.0 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.30 Rated speed rpm : 1020.0

Tolerance  $1/\min$ :  $\leftarrow$  5.0

rack travel mm : 4.00 Rated speed rpm : 1180.0 Tolerance  $1/\min$ : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50 Tolerance mm : +- 0.50

Rated speed rpm : 1250

LOW IDLE

control lever

position degree : 12.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8 Rated speed rpm : 275

CRT mm min. : 6.10

Testing:

Rated speed rpm : 325 rack travel mm : 4.80 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 975 rack travel mm : 12.35 Tolerance mm : + 0.05

Rated speed rpm : 600 rack travel mm : 11.80 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 5.75 Tolerance mm : +- 5.75

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 975
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 975

rack travel mm : 7.90
Tolerance mm : + 0.20

Pressure hPa : 235 rack travel mm : 9.05 Tolerance mm : +- 0.05

Pressure hPa : 570 rack travel mm : 11.80 Tolerance mm : +- 0.20

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 224.00

Tolerance

cm3/1000 strokes : +-3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 148.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.30 Tolerance mm : +-0.30

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. :  $\leftarrow 30.00$ 

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. :  $\leftarrow 5.00$ 

Spreed

Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) \$400/...

: 02,05,90 Edition : ISO-4113 Test oil

Combination No. : 0 402 746 886

Injection bumb

Pump designation : PES6P12OA72ORS7157 EP type number : 0 412 726 814

Governor

Governer design. : RQV325...975PA944

: -4K

: 0 421 815 239 Governer no.

Cust. part No. : 313GC5185-P26

Customer-spec. information

Customer : MACK TRUCKS Motor : E7-250A : 186.0 Power KW

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h : 165.0 Tolerance L/h : +- 5.0 min. L/h

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

# REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 18.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05 Check

tolerance mm : +- 0.10

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 10.45 Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 165.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance cm3/1000s.

: +- 3.00

Spreed

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm: 4.80 : + 0.10Tolerance mm

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : + 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

## GUIDE SLEEVE TRAVEL

Rated speed rpm : 275

quide sleeve

: 0.75 travel mm : +- 0.25 Tolerance mm

: 325 Rated speed rpm

guide sleeve

: 1.60 travel mm : + 0.10Tolerance mm

Rated speed rpm : 450

guide sleeve

: 3.10 travel mm : + 0.20 Tolerance mm

Rated speed rpm

: 1000

guide sleeve

: 8.50 travel mm : +- 0.10 Tolerance mm

: 1200 Rated speed rpm

guide steeve

: 10.40 travel mm : + 0.20Tolerance mm

#### GUIDE SLEEVE POSITION

control lever

position degree : -1

## FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 975

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 165.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

#### CONTROL LEVER

control lever

position degree : 58.0 tolerance degree : +- 4.0

## RATED SPEED

rack travel mm : 9.40 Rated speed rpm : 1020.0 Tolerance  $1/\min$ : +-5.0

rack travel mm : 4.00 Rated speed rpm : 1135.0 Tolerance 1/min : + 15.0

rack travel mm : 4.00

rack travel mm : 0.50 Tolerance mm : **←** 0.50 Rated speed rpm : 1250

## LOW IDLE

control lever

position degree : 12.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8 Rated speed rpm : 275

CRT mm min. : 6.10

Testing:

Rated speed rpm rack travel imm : 4.80 : +- 0.10 : 325

rack travel mm : 2.00

TORQUE CONTROL

: 975 Rated speed rpm rack travel mm : 10.45 Tolerance mm : +- 0.05

Rated speed rpm : 600 : 10.90 rack travel mm : +- 0.10 Tolerance mm

Rated speed rpm : 500 rack travel mm : 5.10 Tolerance mm : ← 5.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600 Pressure hPa : 1200 rack travel mm : 10.90 : ← 0.10 Tolerance mm

**MEASUREMENT** 

: 600 Rated speed rpm

: 7.70 rack travel mm Tolerance mm : +- 0.20

Pressure hPa : 195 : 8.45 rack travel mm : +- 0.05 Tolerance mm

: 375 Pressure hPa : 10.10 rack travel mm : ← 0.20 Tolerance mm

Start interlock

Rated speed rpm : 275

Check

speed 1/min : 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

'nРа

: 1200 Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 201.50

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

: 400 Rated speed rpm

Del. quantity

cm3/1000 strokes : 148.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.00

Check tolerance

cm3/1000S. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.30 : +- 0.30 Tolerance mm

Del. quantity

cm3/1000 strokes : 200.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm :  $\leftarrow$  0.10

Del. quantity

cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000S. : +- 5.00

Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0 : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.05.90 : ISO-4113

Combination No. : 0 402 746 888

Injection pump

Pump designation : PES6P120A720RS7164

EP type number : 0 412 726 816

Governor

Governer design. : RQV325...875PA878

: -15K

Governer no.

: 0 421 815 235

Cust. part No. : 313GC5181P16

Customer-spec. information

Customer : MACK TRUCKS

Motor

: EMC6 300L 4VH

Power KW

: 200.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 011

Inlet press. bar : 1.50

Overflow quantity

min. l/h

: 165.0

Tolerance i/h : +- 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

G12

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 18.0

Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : +- 0.

Toterance mm

: +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 12.50 Tolerance mm :  $\leftarrow$  0.50

Firing order

: 1-5- 3- 6- 2

: - 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance \*NW

: +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 14.95

Tolerance mm

: +- 0.05

Del. quantity

cm3/1000 strokes : 226.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance cm3/1000s. : +- 3.00

Spreed

Tolerance cm3/1000 strokes : 5.0

Check tolerance cm3/1000s. : 9.0

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

# (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

guide sleeve

travel mm : 1.30 Tolerance mm : + 0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.20
Tolerance mm : + 0.20

Rated speed rpm : 850

guide sleeve

travel mm : 6.00 Tolerance mm : +- 0.10

Rated speed rpm : 1000

guide sleeve

travel mm : 7.55
Tolerance mm : + 0.15

### GUIDE SLEEVE POSITION

control lever

position degree : -1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 875

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 226.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 58.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.90
Rated speed rpm : 920.0
Tolerance 1/min : +- 5.0

rack travel mm : 4.00
Rated speed rpm : 1080.0
Tolerance 1/min : +- 15.0

rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1160

LOW IDLE

control lever

position degree : 14.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 4.8

Rated speed rpm : 275

CRT mm min. : 5.90

Testing:

Rated speed rpm : 325 rack travel mm : 4.80 Tolerance mm : + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 875
rack travel mm : 14.95
Tolerance mm : + 0.05

Rated speed rpm : 510 rack travel mm : 16.90 Tolerance mm : + 0.10

Rated speed rpm : 700 rack travei mm : 15.70 Tolerance mm : + 0.10

Rated speed rpm : 600 rack travel mm : 16.50 Tolerance mm : + 0.10

Rated speed rpm : 420 rack travel mm : 8.40 Tolerance mm : +- 8.40

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 1200
rack travel mm : 16.90
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 510

rack travel mm : 11.10
Tolerance mm : + 0.20

Pressure hPa : 375
rack travel mm : 12.75
Tolerance mm : + 0.05

Pressure hPa : 735 rack travel mm : 15.90

Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 510

Del. quantity

cm3/1000 strokes : 308.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed

Tolerance

cm3/1000 strokes : 8.00

Check tolerance

cm3/1000s. : 12.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 158.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 11.10 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 180.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000s. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 42.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0 : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 16.02.90 : ISO-4113

Combination No. : 0 402 748 801

Injection pump

Pump designation : PES8P120A920/4LS7184

EP type number : 0 412 728 802

Governor

Governer design. : RQV325...950PA848

: -16K

Governer no.

: 0 421 815 196

Cust. part No. : 313GC5180P2

Customer-spec. information Customer : MACK : 59 500 Motor : 373.0 Power KW

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C Tolerance °C

: 40.0 : -- 2.0

Overflow valve

: 2 417 413 011

Overflow quantity

min. L/h

: 165.0

Tolerance L/h

: **←** 5.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

: 208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 23.0

Tolerance bar : + 1.0

Prestroke mm : 3.60 : +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm : 12.00 Tolerance mm :  $\leftarrow$  1.00

Firing order : 1- 2- 7- 8- 4- 5

: - 6 - 3

Phasing : 0-45-90-135-180-225

: -270-315

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no.

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 15.05

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 231.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance : +- 4.00 cm3/1000s. Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm: 5.70 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 41.00 Tolerance cm3/1000 strokes : +- 3.00 Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.: 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.45 travel mm Tolerance mm : +- 0.15 Rated speed rpm : 450 guide steeve : 2.95 travel mm Tolerance mm : +- 0.15 Rated speed rpm : 800 guide sleeve : 5.80 travel mm Tolerance mm : + 0.10Rated speed rpm : 1050 guide sleeve : 7.95 travel mm : +- 0.15 Tolerance mm Rated speed rpm : 1200 guide sleeve

: 9.65

: +- 0.15

GUIDE SLEEVE POSITION control lever position degree : -1 Rated speed rpm : 1150 Rack travel in mm: 10.00 Tolerance mm : +- 3.00 FULL LOAD DELIVERY AT FULL LOAD STOP : 950 Rated speed rpm Aneroid pressure : 900 hPa Del. quantity cm3/1000 strokes : 231.00 Tolerance cm3/1000 strokes : +- 1.00 Check tolerance : +- 4.00 cm3/1000s.Spreed

: 9.0

CONTROL LEVER

Check tolerance cm3/1000s.

Tolerance

control lever position degree : 62.0 tolerance degree : +- 4.0

cm3/1000 strokes : 5.0

RATED SPEED

rack travel mm : 10.0 Rated speed rpm : 1150

rack travel mm : 14.00
Rated speed rpm : 995.0
Tolerance 1/min : +- 5.0

rack travel mm : 4.00
Rated speed rpm : 1150.0
Tolerance 1/min : +- 15.0

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

travel mm

Tolerance mm

control lever

position degree : 17.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.7

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 5.70 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 15.05
Tolerance mm : +- 0.05

Rated speed rpm : 650 rack travel mm : 14.60 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 7.00 Tolerance mm : + 7.00

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 950
Pressure hPa : 900
rack travel mm : 15.05
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 950

rack travel mm : 9.20 Tolerance mm : +- 0.20

Pressure hPa : 230 rack travel mm : 10.65 Tolerance mm : + 0.05

Pressure hPa : 535 rack travel mm : 13.35 Tolerance mm : + 0.15 Start interlock

Rated speed rpm : 270

Check

speed 1/min : 280

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 900 Rated speed rpm : 650

Del. quantity

cm3/1000 strokes : 255.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 10.00

Check tolerance

cm3/1000s. : 14.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 146.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 11.30 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 165.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. :  $\leftarrow 30.00$ 

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.70
Tolerance mm : +- 0.10

Del. quantity cm3/1000 strokes : 41.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : +- 5.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 23.03.90 : ISO-4113

Combination No. : 0 402 748 802

Injection pump

Pump designation : PES8P120A920/4LS7159

EP type number : 0 412 728 801

Governor

Governer design. : RQV325..1050PA848

: -21K

Governer no.

: 0 421 815 201

Cust. part No. : 313GC5178P2

Customer-spec. information Customer : MACK : EE9 502 Motor Power KW : 368.0

TEST BENCH REQUIREMENTS

Test oil inlet

: 40.0 temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 23.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : +- 0.05

Check

tolerance mm : +-0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-7-8-4-5

: - 6- 3

Phasing : 0-45-90-135-180-225

: -270-315 : +- 0.50

Check

Tolerance

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 630

Rack travel in mm : 11.95 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 208.00

Tolerance

cm3/1000 strokes : + 1.00

G20

Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0

Rack travel in mm: 4.90 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00

Check tolerance

cm3/1000s.: +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

# (B) SETTING OF INJECTION PUMP WITH GOVERNOR

# GUIDE SLEEVE TRAVEL

Rated speed rpm : 325

quide sleeve

: 1.45 travel mm Tolerance mm : + - 0.15

Rated speed rom : 450

guide sleeve

: 2.50 travel mm : + 0.20 Tolerance mm

: 800 Rated speed rpm

guide sleeve

: 4.60 travel mm : +- 0.20 Tolerance mm

: 1050 Rated speed rpm

guide sleeve

: 7.00 travel mm : +- 0.10 Tolerance mm

: 1200 Rated speed rpm

guide sleeve

: 9.05 travel mm Tolerance mm : +- 0.15

#### GUIDE SLEEVE POSITION

control lever

position degree : -1 Rated speed rpm : 1220

Rack travel in mm: 10.00 Tolerance mm : +- 3.00

# FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 630

Aneroid pressure

hPa : 1200

bel. quantity

cm3/1000 strokes : 208.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

#### CONTROL LEVER

control lever

position degree : 61.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.0 Rated speed rpm : 1220

rack travel mm : 12.10 Rated speed rpm : 1100.0 Tolerance  $1/\min$ : + 5.0

rack travel mm : 4.00 Rated speed rpm : 1195.0 Tolerance  $1/\min$ : + 15.0

rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1300

LOW IDLE

control lever

position degree : 13.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

kated speed rpm : 325
rack travel mm : 4.9

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 4.90 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 630 rack travel mm : 11.95 Tolerance mm : + 0.05

Rated speed rpm : 1050 rack travel mm : 13.20 Tolerance mm : +- 0.10

Rated speed rpm : 500 rack travel mm : 5.65 Tolerance mm : + 5.65

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1200
rack travel mm : 13.20
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 1050

rack travel mm : 9.30 Tolerance mm : +- 0.20

Pressure hPa : 195
rack travel mm : 10.25
Tolerance mm : + 0.05

Pressure hPa : 410 rack travel mm : 12.30 Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 280

Check

speed 1/min : 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200 Rated speed rpm : 1050

Del. quantity

cm3/1000 strokes : 205.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed Tolerance

cm3/1000 strokes : 10.00

Check tolerance

cm3/1000s. : 14.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 172.50

Tolerance

cm3/1000 strokes : +- 2.00

Check colerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 9.70 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 170.00

Tolerance

cm3/1000 strokes : +- 20.00

Check tolerance

cm3/1000s. : +- 25.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 4.90 Tolerance mm : +- 0.10

Del. quantity cm3/1000 strokes : 43.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance cm3/1000s. : +- 5.00

Spreed

Toterance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000S. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 01.02.90 Edition : ISO-4113 Test oil

Combination No. : 0 402 748 803

Injection pump

Pump designation : PES8P120A920/4LS7184

EP type number : 0 412 728 802

Governor

Governer design. : RQV325...950PA848

: -22K

: 0 421 815 202 Governer no.

Cust. part No. : 313GC5180P2

Customer-spec. information

Customer : MACK : E9 450 Motor

: 331.0 Power KW

# TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 011

Overflow quantity

min. L/h : 165.0 Tolerance L/h : + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 23.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow 0.10$ 

Rack travel in mm : 12.00 Tolerance mm : +- 1.00

Firing order : 1- 2- 7- 8- 4- 5

: - 6- 3

Phasing : 0-45-90-135-180-225 -270-315 : +- 0

Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.95 Tolerance mm : **←** 0.05

Del. quantity

cm3/1000 strokes : 211.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 Rated speed rpm : 325.0 Rack travel in mm: 5.50 Tolerance mm : **←** 0.10 Del. quantity cm3/1000 strokes : 41.08 Tolerance cm3/1000 strokes : +- 3.00Check tolerance cm3/1000s.: +- 5.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 325 guide sleeve : 1.55 travel mm : +- 0.15 Tolerance mm Rated speed rpm : 450 guide sleeve : 2.95 travel mm : + 0.15Tolerance mm Rated speed rpm : 800 guide sleeve : 5.80 travel mm Tolerance mm : + 0.10Rated speed rpm : 1050 guide sleeve travel mm : 7.95 : + 0.15Tolerance mm Rated speed rpm : 1200 guide sleeve travel mm : 9.75 Tolerance mm : **←** 0.15

GUIDE SLEEVE POSITION

control lever

position degree : -1 Rated speed rpm : 1145

Rack travel in mm: 10.00 Tolerance mm : +-3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rom : 950

Aneroid pressure

hPa : 900

Del. quantity

cm3/1000 strokes : 211.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.: 9.0

CONTROL LEVER

control lever

position degree : 60.0 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.0 Rated speed rpm : 1145

rack travel mm : 12.90 Rated speed rpm : 995.0 : +- 5.0 Tolerance 1/min

: 4.00 rack travel mm Rated speed rpm : 1140.0 Tolerance 1/min : + 15.0

rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1250

LOW IDLE

control lever

position degree : 16.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325 rack travel mm : 5.5

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

Rated speed rpm : 325 rack travel mm : 5.50 Tolerance m:  $\leftarrow$  C.10

TORQUE CONTROL

Rated speed rpm : 950 rack travel mm : 13.95
Tolerance mm : + 0.05

Rated speed rpm : 650 rack travel mm : 13.30 : +- 0.10 Tolerance mm

Rated speed rpm : 750 rack travel mm : 13.80 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 6.20 Tolerance mm : +- 6.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 950 Pressure hPa : 900 rack travel mm : 13.95 : +- 0.05 Tolerance mm

**MEASUREMENT** 

Rated speed rpm : 950

rack travel mm : 8.90 Tolerance mm : +- 0.20

Pressure hPa : 230 rack travel mm : 10.25 Tolerance mm : +- 0.05

Pressure hPa : 535 rack travel mm : 12.80
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 270

Check

speed 1/min : 280

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 900 nPa Rated speed rpm : 650

Del. quantity

cm3/1000 strokes : 219.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.00 Check tolerance

cm3/1000s.

: +- 6.00

Spreed

Tolerance

cm3/1000 strokes : 10.00

Check tolerance

: 14. cm3/1000s.

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 146.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

Rated speed rpm rack travel mm : 11.20 Tolerance mm : +- 0.20

Del. quantity

cm3/1000 strokes : 165.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

: +- 30.00 cm3/1000s.

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.50 Tolerance mm :  $\leftarrow 0.10$ 

Del. quantity cm3/1000 strokes : 41.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : **←** 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 16.02.90 Edition Test oil : ISO-4113

Combination No. : 0 402 748 803

Injection pump

Pump designation : PES8P120A920/4LS7184

EP type number : 0 412 728 802

Governor

Governer design. : RQV325...950PA848

: -22K

: 0 421 815 202 Governer no.

Cust. part No. : 313GC5180P4

Customer-spec. information Customer : MACK : E9 450 Motor Power KW : 331.0

## TEST BENCH REQUIREMENTS

Test oil inlet

: 40.0 temp. °C : + 2.0 Tolerance °C

Overflow valve : 2 417 413 011

Overflow quantity

: 165.0 min. L/h min. l/h : 165.0 Tolerance l/h : +- 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 23.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : +- 0.05 Check

tolerance mm : +-0.10

Rack travel in mm : 12.00 Tolerance mm : +- 1.00

Firing order : 1-2-7-8-4-5

: - 6- 3

Phasing : 0-45-90-135-180-225

: -270-315 : +- 0.50

Tolerance Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.95

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 211.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 Rated speed rpm : 325.0 Rack travel in mm: 5.50 Tolerance mm : + 0.10Del. quantity hPa cm3/1000 strokes : 41.00 Del. quantity Tolerance cm3/1000 strokes : + 3.00Check tolerance : +- 5.00 cm3/1000s. Spreed Tolerance Spreed cm3/1000 strokes : 8.0 Tolerance Check tolerance cm3/1000S. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR control lever GUIDE SLEEVE TRAVEL : 325 Rated speed rpm guide sleeve : 1.55 travel mm Tolerance mm : + 0.15: 450 Rated speed rpm quide sleeve : 2,95 travel mm : + 0.15Tolerance mm : 800 Rated speed rpm guide sleeve : 5.80 travel mm : + 0.10Tolerance mm : 1050 Rated speed rpm guide sleeve : 7.95 travel mm : + 0.15Tolerance mm Rated speed rpm : 1200 guide sleeve LOW IDLE travel mm : 9.75 : + 0.15

GUIDE SLEEVE POSITION control lever position degree : -1 Rated speed rpm : 1145 Rack travel in mm : 10.00 Tolerance mm : + 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP : 950 Rated speed rpm

Aneroid pressure : 900

cm3/1000 strokes : 211.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 4.00

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.: 9.0

CONTROL LEVER

position degree : 60.0

tolerance degree : + 4.0

RATED SPEED

: 10.0 rack travel mm Rated speed rpm : 1145

: 12.90 rack travel mm Rated speed rpm : 995.0 : +- 5.0 Tolerance 1/min

rack travel mm : 4.00 Rated speed rpm : 1140.0 : **←** 15.0 Tolerance 1/min

rack travel mm : 0.50 : + 0.50Tolerance mm : 1250 Rated speed rpm

Tolerance mm

control lever

position degree : 16.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

: 325 Rated speed rpm : 5.5 rack travel mm

Rated speed rpm : 275

CRT mm min. : 1.50

Testing:

: 325 Rated speed rpm rack travel mm : 5.50 : + - 0.10Tolerance mm

TORQUE CONTROL

: 950 Rated speed rpm rack travel mm : 13.95 : + 0.05Tolerance mm

Rated speed rpm : 650 rack travel mm : 13.30 Tolerance mm : + 0.10

Rated speed rpm : 750 rack travei mm : 13.80 Tolerance mm : + - 0.10

: 500 Rated speed rpm : 6.20 rack travel mm Tolerance mm : +- 6.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rom : 950 : 900 Pressure hPa : 13.95 rack travel mm : + 0.05Tolerance mm

**MEASUREMENT** 

: 950 Rated speed rpm

rack travel mm : 8.90 : **←** 0.20 Tolerance mm

: 230 Pressure hPa : 10.25 rack travel mm : **←** 0.05 Tolerance mm

Pressure hPa : 535 rack travel mm : 12.80 Tolerance mm : + 0.20

Start interlock

Rated speed rpm : 270

Check

: 280 speed 1/min

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

: 900 Rated speed rpm : 650

Del. quantity

cm3/1000 strokes : 219.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s. : + 6.00

Spreed Tolerance

cm3/1000 strokes : 10.00

Check tolerance

cm3/1000s. : 14.

: 400 Rated speed rpm

Del. quantity

cm3/1000 strokes : 146.00

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.00

Check tolerance

cm3/1000s. : +- 4.00

STARTING FUEL DELIVERY

: 100 Rated speed rpm rack travel mm : 11.20 : +- 0.20 Tolerance mm

Del. quantity

cm3/1000 strokes : 165.00

Tolerance

cm3/1000 strokes : + 20.00

Check tolerance

cm3/1000S. : +- 30.00

LOW IDLE

Rated speed rpm : 325.0

Rack travel in mm : 5.50 : +- 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 41.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 05,03,90 Edition Test oil : ISO-4113

Combination No. : 0 402 776 803

Injection pump

Pump designation: PES6P120A720LS7107

: -1

EP type number : 0 412 726 805

Governor

Governer design. : RSV350..750P0A520-1

Governer no. : 0 421 833 262

Cust. part No. :

Customer-spec. information Customer : MB-NFZ : OM447 A Motor : 180.0 Power KW

TEST BENCH REQUIREMENTS

Test oil inlet

: 40.0 temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Overflow quantity

: 110.0 min. L/h : + 10.0Tolerance L/h

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

: 1 680 750 067 Test lines

Outside diameter : 6.00

x inside diameter: 3.00

x length mm : 1000

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.25 Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

: 6-2-4-1-5 Firing order

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

: + 0.75tolerance \*NW

Start of delivery mark

Barrel no.

BASIC SETTING

: 700 Rated speed rpm

Rack travel in mm : 14.85 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 225.00

Tolerance

cm3/1000 strokes : +- 1.00

H<sub>0</sub>4

Check tolerance

cm3/1000s.

: +- 4.00

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

: 9.0

Rated speed rpm : 350.0

Rack travel in mm : 5.65

Tolerance mm : +- 0.15

Del. quantity

cm3/1000 strokes : 17.00

Tolerance

cm3/1000 strokes : +- 3.00

Check tolerance

cm3/1000s.: <del>←</del> 6.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

: -3 position degree Rated speed rpm : 800

Rack travel in mm: 0.65

: +- 0.35 Tolerance mm

governor spring

pre-tension

click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Del. quantity

cm3/1000 strokes : 225.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

: +- 4.00 cm3/1000S.

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 81.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 0.6

Rated speed rpm : 800

rack travel mm : 0.85

Tolerance mm : +-0.85

Rated speed rpm : 1000

LOW IDLE

control lever

position degree : 67.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.6

Rated speed rpm : 100

CRT mm min. : 19.50

Testing:

Rated speed rpm : 350

rack travel mm : 5.65

Tolerance mm : +- 0.15

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm

: 700

rack travel mm : 14.85

Tolerance mm

: + - 0.05

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500 Pressure hPa : 750

#### **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 320 rack travel mm : −1.70 Tolerance mm : + 0.10

rack travel mm : -2.40 Tolerance mm : +- 0.10

# STARTING FUEL SECRETARY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 240.00

Tolerance

cm3/1000 strokes : +- 10.00

Check tolerance

cm3/1000s. :  $\leftarrow 14.00$ 

## LOW IDLE

Rated speed rpm : 350.0

Rack travel in mm : 5.65
Tolerance mm : +- 0.15

Del. quantity

cm3/1000 strokes : 17.00

Tolerance

cm3/1000 strokes : + 3.00

Check tolerance

cm3/1000s. : +- 6.00

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 19.03.90 Edition : ISO-4113 Test oil

Combination No. : 0 402 776 806

Injection pump

Pump designation : PES6P120A720LS7120

EP type number : 0 412 726 803

Governor

Governer design. : RSV350..1050P0A529

: -3

: 0 421 833 317 Governer no.

Cust, part No. :

Customer-spec. information : MB-NFZ Customer Motor : 0M447 A Power KW : 213.0

TEST BENCH REQUIREMENTS

Test oil inlet

: 40.0 temp. °C Tolerance °C : + 2.0

: 1 417 413 025 Overflow valve

Inlet press. bar : 1.50

Overflow quantity

: 110.0 min. L/h Tolerance l/h : **←** 10.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

: 1 680 750 067 Test lines

Outside diameter : 6.00

x inside diameter: 3.00

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : +- 0.05

Check

tolerance mm : +-0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

: 6-2-4-1-5 Firing order

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Start of delivery mark

: 6 Barrel no.

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 14.10 : +- 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 203.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance : +- 4.00 cm3/1000s. Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 Rated speed rpm : 350.0 Rack travel in mm: 5.70 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 17.00 Tolerance cm3/1000 strokes : +- 3.00Check tolerance cm3/1000s. : +- 6.00 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm: 0.50 Tolerance mm : + 0.20FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 650 Aneroid pressure : 650 hPa Del. quantity cm3/1000 strokes : 203.00 Tolerance cm3/1000 strokes : +- 1.00 Check tolerance cm3/1000s. : + 4.00

Tolerance cm3/1000 strokes : 5.0 Check tolerance : 9.0 cm3/1000s. CONTROL LEVER control lever position degree : 52.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 0.5 Rated speed rpm : 800 rack travel mm : 12.30 Rated speed rpm : 1085.0 Tolerance  $1/\min$ : +- 5.0 rack travel mm : 4.00 Rated speed rpm : 1185.0 Tolerance 1/min : + 15.0 rack travel mm : 0.85 : +- 0.55 Tolerance mm Rated speed rpm : 1300 LOW IDLE control lever position degree : 26.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 5.7 rack travel mm Testing: Rated speed rpm : 350 rack travel mm : 5.70 : + 0.10Tolerance mm SET IDLE AUXILIARY SPRING rack travel mm : 2.00

TORQUE CONTROL

Tolerance mm

Rated speed rpm : 650

rack travel mm : 14.10

: +- 0.10

Spreed

: 950 Rated speed rpm : 13.80 rack travel mm Tolerance mm : **←** 0.10 Rated speed rpm : 875 : 14.30 rack travel mm Tolerance mm : + 0.10: 750 Rated speed rpm : 14.80 rack travel mm : + - 0.10Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 600 **MEASUREMENT** Rated speed rpm : 600 FUEL DELIVERY CHARACTERISTICS Aneroid pressure : 1200 hPa : 1030 Rated speed rpm Del. quantity cm3/1000 strokes : 195.50 Tolerance cm3/1000 strokes : +- 1.50Check tolerance cm3/1000s. : **←** 4.50 Spreed Tolerance cm3/1000 strokes : 8.00 Check tolerance : 12. cm3/1000s.Aneroid pressure : 1200 hPa : 750 Rated speed rpm Del. quantity cm3/1000 strokes : 221.50 Tolerance cm3/1000 strokes : +- 2.50 Check tolerance cm3/1000S. : +-5.50Spreed Tolerance cm3/1000 strokes : 8.00 Check tolerance

: 12.00

Aneroid pressure ; ) Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 145.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 8.00 Check tolerance cm3/1000s. : 12.00 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 200.00 Tolerance cm3/1000 strokes : +- 10.00 Check tolerance cm3/1000s. : +- 14.00 LOW IDLE Rated speed rpm : 350.0 Rack travel in mm : 5.70 : + 0.10Tolerance mm Del. quantity cm3/1000 strokes : 17.00 Tolerance cm3/1000 strokes : + 3.00Check tolerance : +- 6.00 cm3/1000s.Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000S.: 12.0

End of test specification sheet

cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.10.89 Test oil : ISO-4113

Combination No. : 0 402 846 857A

Injection pump

Pump designation : PE6P130A720RS7150 EP type number : 0 412 636 808

Governor

Governer design. : RQV250...900PA881 Governer no. : 0 421 813 676

Cust. part No. :

Customer—spec. information Customer : VOLVO—CAR

Motor : TAMD 162 A (PD)

Power KW : 450.0

## TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 067

Outside diameter : 6.00

x inside diameter : 3.00 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.65 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.30

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.65
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 384.00

Tolerance

cm3/1000 strokes :  $\leftarrow 1.00$ 

Check tolerance

cm3/1000s. :  $\leftarrow 5.00$ 

Spreed

Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.: 9.0 : 250.0 Rated speed rpm Rack travel in mm: 3.80 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 19.50 Tolerance cm3/1000 strokes : + 2.50 Check tolerance cm3/1000s.: +- 5.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 7.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 250 quide sleeve : 1.10 travel mm Tolerance mm : + 0.20Rated speed rpm : 350 guide sleeve : 2.30 travel mm : + - 0.30Tolerance mm : 700 Rated speed rpm guide sleeve travel mm : 4.20 : +- 0.30Tolerance mm : 1075 Rated speed rpm guide sleeve : 8.20 travel mm : + 0.10Tolerance mm Rated speed rpm : 1160 guide sleeve

: 9.50

: +- 0.20

control lever position degree : -1 Rated speed rpm : 1100 Rack travel in mm : 16.50 : +- 1.30 Tolerance mm FULL LOAD DELIVERY AT FULL LOAD STOP : 700 Rated speed rpm Aneroid pressure : 1200 hPa Del. quantity cm3/1000 strokes : 384.00 Tolerance cm3/1000 strokes : +- 1.00 Check tolerance cm3/1000s. : +- 5.00 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 119.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 16.5 : 1100 Rated speed rpm : 11.60 rack travel mm Rated speed rpm : 1075.0 : +- 5.0 Tolerance 1/min : 4.00 rack travel mm : 1160.0 Rated speed rpm Tolerance 1/min : +- 15.0 rack travel mm : 0.50 : + 0.50Tolerance mm : 1300 Rated speed rpm

# LOW IDLE

control lever position degree

: 67.0 tolerance degree : +- 4.0

travel mm

Tolerance mm

GUIDE SLEEVE POSITION

# Setting point w/out bumper spring

Rated speed rpm : 250 rack travel mm : 3.8

Rated speed rpm : 100

CRT mm min. : 5.30

Testing:

Rated speed rpm : 250 rack travel mm : 3.80 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 12.65 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.65
Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 500

Pressure hPa : 340 rack travel mm : 0.25 Tolerance mm : + 0.05

Pressure hPa : 970
rack travel mm : 3.65
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700

Del. quantity

cm3/1000 strokes : 217.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 5.00

LOW IDLE

Rated speed rpm : 250.0

Rack travel in mm : 3.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 19.50

Tolerance

cm3/1000 strokes : + 2.50

Check tolerance

cm3/1000s. : +- 5.00

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 7.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15.12.89 Test oil : ISO-4113

Combination No. : 0 403 456 101

Injection pump

Pump designation : PES6MW100/321RS1153

EP type number : 0 413 406 145

Governor

Governer design. : RQ250/1300MW84 Governer no. : 0 420 082 029

Cust. part No. : 2-7724

Customer-spec. information

Customer : MAN
Motor : D 0826 LF

Power KW : 165.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.50

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : +- 1.0

Prestroke mm : 3.05 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.55 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 134.00

Tolerance

cm3/1000 strokes :  $\leftarrow 1.00$ 

Check tolerance

cm3/1000s. :  $\leftarrow 3.00$ 

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.

: 6.0

Rated speed rpm : 250.0

Rack travel in mm: 5.00

: + 0.10Tolerance mm

Del. quantity

cm3/1000 strokes : 20.00

Tolerance

cm3/1000 strokes : + 2.00

Check tolerance

cm3/1000s. : + 4.50

Spreed Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000S. : 5.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

: 1440 Rated speed rpm

guide sleeve

: 8,90 travel mm : + 0.20 Toterance mm

: 1360 Rated speed rpm

guide sleeve

: 6.40 travel mm

Tolerance mm : + 0.10

Rated speed rpm : 380

guide sleeve

travel mm : 4.40

: + 0.30Tolerance mm

: 250 Rated speed rpm

guide sleeve

: 1.70 travel mm

: + 0.20Tolerance mm

GUIDE SLEEVE POSITION

control lever

: -2 position degree

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm :  $\leftarrow 0.80$ 

FULL LOAD DELIVERY AT FULL LOAD STOP

: 1000 Rated speed rpm

Aneroid pressure

: 1000 hPa

Del. quantity

cm3/1000 strokes : 134.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000S. : 6.0

CONTROL LEVER

control lever

position degree : 30.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 20.0 Rated speed rpm : 600

rack travel mm : 10.50 Rated speed rpm : 1352.5 : **←** 7.5 Tolerance 1/min

: 4.00 rack travel mm : 1450.0 Rated speed rpm : +- 10.0 Tolerance 1/min

rack travel in : 4.00

: 0.50 rack travel mm Tolerance mm : **←** 0.50 Rated speed rpm : 1530

LOW IDLE

control lever

position degree : 10.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

: 250 Rated speed rpm : 5.0 rack travel mm : 100 Rated speed rpm CRT mm min. : 7.00 Testing: Rated speed rom : 250 rack travel mm : 5.00 Tolerance mm : + 0.10rack travel mm : 2.00 TORQUE CONTROL : 1000 Rated speed rpm rack travel mm : 11.55 Tolerance mm : +- 0.05 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 500 rack travel mm : 9.15 Tolerance mm : +- 0.05 **MEASUREMENT** : 500 Rated speed rpm : 180 Pressure hPa rack travel mm : 9.45 : +- 0.05 Tolerance mm Pressure hPa : 385 : 10.85 rack travel mm : + 0.15Tolerance mm : 1000 Pressure hPa : 11.55 rack travel mm : +- 0.05 Tolerance mm Start interlock : 180 Rated speed rpm Check speed 1/min : 200 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure : 1000 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 130.50 Tolerance cm3/1000 strokes : +- 1.50Check tolerance cm3/1000s. : + 4.00Spreed Tolerance cm3/1000 strokes : 5.00 Check tolerance cm3/1000s. : 7. Aneroid pressure : 1000 Rated speed rpm : 800 Del. quantity cm3/1000 strokes : 132.50 Tolerance cm3/1000 strokes : + 1.50Check tolerance : +-4.00cm3/1000s. Rated speed rpm : 1300 Del. quantity cm3/1000 strokes : 134.00 Tolerance cm3/1000 strokes : + 1.50Check tolerance : +- 4.00 cm3/1000s. Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 75.00 Tolerance cm3/1000 strokes : +- 1.00Check tolerance cm3/1000s.: +- 3.00 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 135.00 Tolerance cm3/1000 strokes : +- 5.00Check tolerance : + 8.00

cm3/1000s.

LOW IDLE

Rated speed rpm : 250.0

Rack travel in mm : 5.00 : +- 0.10 Tolerance mm

Del. quantity cm3/1000 strokes : 20.00

Tolerance

cm3/1000 strokes :  $\leftarrow 2.00$ 

Check tolerance cm3/1000s. : + 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

: 5.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13.12.89 Test oil : ISO-4113

Combination No. : 0 403 456 102

Injection pump

Pump designation : PES6MW100/321RS1153

EP type number : 0 413 406 145

Governor

Governer design. : RQV250...1300MW83

Governer no. : 0 420 083 139

Cust. part No. :

Customer—spec. information

Customer : MAN

Motor : D 0826 LF

Power KW : 165.0

# TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.50

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter : 2.00 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : +- 1.0

Prestroke mm : 3.05

Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow 0.10$ 

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance "NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.55

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 134.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +-3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.

: 6.0

: 250.0 Rated speed rpm

Rack travel in mm : 5.20

: + 0.10Tolerance mm

Del. quantity

cm3/1000 strokes : 20.00

Tolerance

cm3/1000 strokes :  $\leftarrow 2.00$ 

Check tolerance

cm3/1000s. : +- 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000S. : 5.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

: 1450 Rated speed rpm

guide sleeve

: 9.60 travel mm Tolerance mm : +- 0.20

Rated speed rpm : 1350

guide sleeve

: 8.50 travel mm : + 0.10Tolerance mm

: 500 Rated speed rpm

guide sleeve

: 3.00 travel mm

: + - 0.30Tolerance mm

: 250

Rated speed rom

guide sleeve

: 1.00 travel mm

: + 0.20Tolerance mm

GUIDE SLEEVE POSITION

control lever

: -1 position degree

Rated speed rpm : 1320

Rack travel in mm : 16.50 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

: 1000 Rated speed rpm

Aneroid pressure

: 1000

Del. quantity

cm3/1000 strokes : 134.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 6.0

CONTROL LEVER

control lever

position degree : 52.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 16.5 Rated speed rpm : 1320

: 10.50 rack travel mm

Rated speed rpm : 1352.5 Tolerance  $1/\min$ :  $\leftarrow$  7.5

rack travel mm : 4.00

Rated speed rpm : 1450.0 : + 10.0Tolerance 1/min

rack travel mm : 4.00

: 0.50 rack travel mm

: +- 0.50 Tolerance mm

Rated speed rpm : 1600

LOW IDLE

control lever

position degree : 14.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250 rack travel mm : 5.2 Rated speed rpm : 100 CRT mm min. : 7.00 Testing: Rated speed rpm : 250 rack travel mm : 5.20 Tolerance mm : + 0.10rack travel mm : 2.00 TORQUE CONTROL Rated speed rpm : 1000 rack travel mm : 11.55 Tolerance mm : +- 0.05 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 500 rack travel mm : 9.15 Tolerance mm : +- 0.05 **MEASUREMENT** : 500 Rated speed rpm Pressure hPa : 180 rack travel mm : 9.45 Tolerance mm : +- 0.05 Pressure hPa : 385 rack travel mm : 10.85 : +- 0.15Tolerance mm Pressure hPa : 1000 rack travel mm : 11.55 : +- 0.05 Tolerance mm Start interlock Rated speed rpm : 170 Check speed 1/min : 200 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure : 1000 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 130.50 Tolerance cm3/1000 strokes : +- 1.50Check tolerance cm3/1000s.: +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.00 Check tolerance cm3/1000s. : 7. Aneroid pressure : 1000 Rated speed rpm : 800 Del. quantity cm3/1000 strokes : 132.50 Tolerance cm3/1000 strokes : +- 1.50Check tolerance : +- 4.00 cm3/1000s.: 1300 Rated speed rpm Del. quantity cm3/1000 strokes : 134.00 Tolerance cm3/1000 strokes : + 1.50Check tolerance cm3/1000s. : +-4.00: 500 Rated speed rpm Del. quantity cm3/1000 strokes : 75.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000s. : **←** 3.00 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 135.00 Tolerance cm3/1000 strokes : + 5.00Check tolerance : +- 8.00

cm3/1000s.

LOW IDLE

Rated speed rpm : 250.0

Rack travel in mm : 5.20 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 20.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance cm3/1000s. : +- 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15.12.89 Test oil : ISO-4113

Combination No. : 0 403 456 102

Injection pump

Pump designation : PES6MW100/321RS1153

EP type number : 0 413 406 145

Governor

Governer design. : RQV250...1300MW83

Governer no. : 0 420 083 139

Cust. part No. : 2-7725

Customer-spec. information

Customer : MAN

Motor : D 0826 LF

Power KW : 165.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0

Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.50

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : +- 1.0

Prestroke mm : 3.05 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5- 3- 6- 2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +-0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.55

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 134.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 6.0

: 250.0 Rated speed rpm

Rack travel in mm : 5.20

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 20.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : + 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1450

guide sleeve

: 9.60 travel mm : **←** 0.20 Tolerance mm

Rated speed rpm : 1350

guide sleeve

travel mm : 8,50

: + 0.10Tolerance mm

: 500 Rated speed rpm

guide sleeve

: 3.00 travel mm

Tolerance mm : +- 0.30

: 250

Rated speed rpm

guide sleeve

: 1.00 travel mm

Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever

position degree : -1 Rated speed rpm : 1320 Rack travel in mm: 16.50

Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

: 1000 Rated speed rpm

Aneroid pressure

: 1000 hPa

Del. quantity

cm3/1000 strokes : 134.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 6.0

CONTROL LEVER

control lever

: 52.0 position degree

tolerance degree : + 4.0

RATED SPEED

: 16.5 rack travel mm Rated speed rpm : 1320

: 10.50 rack travel mm Rated speed rpm : 1352.5

Tolerance  $1/\min$ : +- 7.5

: 4.00 rack travel mm

Rated speed rpm : 1450.0 : +- 10.0

Tolerance 1/min

: 4.00 rack travel mm

: 0.50 rack travel mm

: +- 0.50 Tolerance mm

Rated speed rpm : 1600

LOW IDLE

control lever

: 14.0 position degree tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 250 rack travel mm : 5.2 Rated speed rpm : 100 CRT mm min. : 7.00 Testina: : 250 Rated speed rpm rack travel mm : 5.20 Tolerance mm : + 0.10rack travel mm : 2.00 TORQUE CONTROL Rated speed rpm : 1000 : 11.55 rack travel mm : + 0.05Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING : 500 Rated speed rpm rack travel mm : 9.15 Tolerance mm : +- 0.05 **MEASUREMENT** Rated speed rpm : 500 : 180 Pressure hPa rack travel mm : 9.45 : + 0.05 Tolerance mm : 385 Pressure hPa : 10.85 rack travel mm : + 0.15Tolerance mm : 1000 Pressure hPa : 11.55 rack travel ma : +- 0.05 Tolerance mm Start interlock Rated speed rpm : 170 Check speed 1/min : 200 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 130.50 Tolerance cm3/1000 strokes : +- 1.50Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.00 Check tolerance cm3/1000s. : 7. Aneroid pressure : 1000 Rated speed rpm : 800 Del. quantity cm3/1000 strokes : 132.50 Tolerance cm3/1000 strokes : +- 1.50Check tolerance cm3/1000s. : +- 4.00 : 1300 Rated speed rpm Del. quantity cm3/1000 strokes : 134.00 Tolerance cm3/1000 strokes : + 1.50Check tolerance cm3/1000s. : +- 4.00 : 500 Rated speed rpm Del. quantity cm3/1000 strokes : 75.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000s. : +- 3.00 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 135.00 Tolerance cm3/1000 strokes :  $\leftarrow 5.00$ Check tolerance cm3/1000s. : + 8.00

LOW IDLE

Rated speed rpm : 250.0

Rack travel in mm : 5.20 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 20.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance cm3/1000s. : **←** 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 15.12.89 Edition Test oil : ISO-4113

Combination No. : 0 403 456 103

Injection pump

Pump designation : PES6MW100/321RS1153

EP type number : 0 413 406 145

Governor

Governer design. : RQV250...1100MW83-1

Governer no. : 0 420 083 182

Cust. part No. : 2-7947

Customer—spec. information

: MAN Customer

: D 0826 L/217 Motor

Power KW : 150.0

## TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.50

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 31.0 Tolerance bar : +- 1.0

Prestroke mm : 3.05 Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 11.45

Tolerance mm : +-0.05

Del. quantity

cm3/1000 strokes : 133.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

: +- 3.00 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.: 6.0

: 250.0 Rated speed rpm

Rack travel in mm: 4.90 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 21.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s.: +- 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1210

guide sleeve

: 11.30 travel mm : + 0.20 Tolerance mm

Rated speed rpm : 1150

guide sleeve

: 10.30 travel mm

: + 0.10Tolerance mm

Rated speed rpm : 550

guide sleeve

: 3.50 travel mm

: + 0.30Tolerance mm

: 250

Rated speed rpm

guide sleeve

: 1.30 travel mm

: + 0.20Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -1 Rated speed rpm : 1130 Rack travel in mm: 16.50

Tolerance mm : **←** 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800

Aneroid pressure

: 1000 hPa

Del. quantity

cm3/1000 strokes : 133.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 6.0

CONTROL LEVER

control lever

position degree : 58.0 tolerance degree : +- 4.0

RATED SPEED

: 16.5 rack travel mm Rated speed rpm : 1130

rack travel mm : 10.40 Rated speed rpm : 1145.0

Tolerance 1/min : +- 5.0

: 4.00 rack travel mm

Rated speed rpm : 1210.0

: +- 15.0 Tolerance 1/min

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1300

LOW IDLE

control lever

position degree : 17.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 250 rack travel mm : 4.9 Rated speed rpm : 100 CRT mm min. : 7.00 Testing: Rated speed rpm : 250 rack travel mm : 4.90 : **←** 0.10 Tolerance mm rack travel mm : 2.00 TORQUE CONTROL : 800 Rated speed rpm rack travel mm : 11.45 : +- 0.05 Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 500 rack travel mm : 8.85 Tolerance mm : **←** 0.05 **MEASUREMENT** : 500 Rated speed rom : 220 Pressure hPa rack travel mm : 9.15 : +- 0.05 Tolerance mm : 480 Pressure hPa rack travel mm : 10.85 : +- 0.15 Tolerance mm Pressure hPa : 1000 rack travel mm 11.45 : + 0.05 Tolerance mm Start interlock Rated speed rpm : 180

: 200

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure : 1000 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 130.50 Tolerance cm3/1000 strokes : +- 1.50Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.00 Check tolerance : 7. cm3/1000s.Aneroid pressure : 1000 Rated speed rpm : 1100 Del. quantity cm3/1000 strokes : 133.00 Tolerance cm3/1000 strokes : +- 1.50Check tolerance cm3/1000s. : +- 4.00 : 500 Rated speed rpm Del. quantity cm3/1000 strokes : 75.00 Tolerance cm3/1000 strokes : + 1.00Check tolerance cm3/1000s. : +- 3.00 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 135.00 Tolerance cm3/1000 strokes : +- 5.00Check tolerance : +- 8.00 cm3/1000s. LOW IDLE Rated speed rpm : 250.0

Rated speed rpm : 250.0

Rack travel in mm : 4.90
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 21.00
Tolerance

cm3/1000 strokes : +- 2.00

Check

speed 1/min

Check tolerance cm3/1000S. : + 4.50

Spreed

Tolerance cm3/1000 strokes : 3.0

Check tolerance cm3/1000s. : 5.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 15.12.89 : ISO-4113

Combination No. : 0 403 456 104

Injection pump

Pump designation : PES6MW100/321RS1180

EP type number : 0 413 406 163

Governor

Governer design. : RQ250/1200MW84-1

Governer no. : 0 420 082 037

Cust. part No. : 2-7986

Customer-spec. information Customer : MAN

Motor

: D 0826 LUH

Power KW

: 157.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.50

Test nozzie holde

assembly

: 0 681 343 009

Opening pressure

: 173.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x Length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure bar: 31.0

Tolerance bar  $: \leftarrow 1.0$ 

Prestroke mm : 3.55
Tolerance mm : + 0.

: +- 0.05

Check

tolerance mm

: +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance "NW

: +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.65

Tolerance mm :  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 127.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s.

: **←** 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 6.0

Rated speed rpm : 250.0

Rack travel in mm: 5.30

Tolerance mm : **←** 0.10

Del. quantity

cm3/1000 strokes : 20.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : + 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1320

guide sleeve

: 8.80 travel mm : +- 0.20 Tolerance mm

: 1260 Rated speed rpm

guide sleeve

travel mm : 6.60

: +- 0.10 Tolerance mm

Rated speed rpm : 350

guide sleeve

: 3.70 travel mm

: + 0.30Tolerance mm

: 250 Rated speed rpm

guide sleeve

: 1.80 travel mm

Tolerance mm : +- 0.30

GUIDE SLEEVE POSITION

control lever

: -2 position degree : 600 Rated speed rpm

Rack travel in mm : 20.00 Tolerance mm : +-0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure

hPa : 1000

Del. quantity

cm3/1000 strokes : 127.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000S.: 6.0

CONTROL LEVER

control lever

position degree : 30.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 20.0 Rated speed rpm : 600

: 10.60 rack travel mm Rated speed rpm : 1252.5

Tolerance 1/min : +- 7.5

: 4.00 rack travel mm

Rated speed rpm : 1320.0

Tolerance 1/min : +- 15.0

rack travel mm : 4.00

: 0.50 rack travel mm

Tolerance mm : + 0.50

Rated speed rpm : 1450

LOW IDLE

control lever

position degree : 10.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 250 : 5.3 rack travel mm Rated speed rpm : 100 : 7.30 CRT mm min. Testing: Rated speed rpm : 250 rack travel mm : 5.30 Tolerance mm : +- 0.10 rack travel mm : 2.00 TORQUE CONTROL Rated speed rpm : 1000 rack travel mm : 11.65
Tolerance mm : + 0.05 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 500 rack travel mm : 9.35 Tolerance mm : +- 0.05 **MEASUREMENT** : 500 Rated speed rpm : 200 Pressure hPa rack travel mm : 9.65 Tolerance mm : +- 0.05 Pressure hPa : 400 rack travel mm : 11.05 Tolerance mm : **←** 0.15 : 1000 Pressure hPa rack travel mm : 11.65 : **←** 0.05 Tolerance mm Start interlock Rated speed rpm : 180 Check speed 1/min : 200 FUEL DELIVERY CHARACTERISTICS Aneroid pressure : 1000 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 124.50 Tolerance cm3/1000 strokes : +- 1.50 Check tolerance cm3/1000s. : +- 4.00 Spreed Tolerance cm3/1000 strokes : 5.00 Check tolerance cm3/1000s. : 7.

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 127.00
Tolerance
cm3/1000 strokes : +- 1.50
Check tolerance
cm3/1000S. : +- 4.00

Rated speed rpm : 1200
Del. quantity
cm3/1000 strokes : 127.00
Tolerance
cm3/1000 strokes : +- 1.50
Check tolerance
cm3/1000s. : +- 4.00

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 75.00
Tolerance
cm3/1000 strokes : +- 1.00
Check tolerance
cm3/1000s. : +- 3.00

# STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 135.00
Tolerance
cm3/1000 strokes : +- 5.00
Check tolerance
cm3/1000s. : +- 8.00

LOW IDLE

Rated speed rpm : 250.0

Rack travel in mm : 5.30 Tolerance mm : +- 0.10

Del. quantity cm3/1000 strokes : 20.00

Tolerance

cm3/1000 strokes : → 2.00

Check tolerance

cm3/1000s. : +- 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance cm3/1000s. : 5.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 15.12.89 : ISO-4113

Combination No. : 0 403 456 105

Injection pump

Pump designation : PES6MW100/321RS1186

EP type number : 0 413 406 168

Governor

Governer design. : RQ250/1200MW84-2

Governer no. : 0 420 082 040

Cust. part No. : 3-7008

Customer-spec. information

Customer

: MAN

Motor

: D 0826 LUH

Power KW

: 157.0

TEST BENCH REQUIREMENTS

Test oil inlet

Tolerance °C : 40.0

: +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.50

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

: 173.5

Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : +- 1.0

Prestroke mm : 3.65 Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 7.50

Tolerance mm :  $\leftarrow$  7.50

Firing order : 1-5-3-6-2

: - 4

Phasing

: 0-60-120-180-240

: -300 : +- 0.50

Tolerance Check

tolerance \*NW

: +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 14.75

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 127.00

Tolerance

cm3/1000 strokes :  $\leftarrow 1.00$ 

Check tolerance cm3/1000s.

: **←** 3.00

Spreed

J05

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 6.0

Rated speed rpm : 250.0

Rack travel in mm: 5.50 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 21.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/1000s. : +- 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1280

quide sleeve

: 9.70 travel mm Tolerance mm : +- 0.20

Rated speed rpm : 1250

guide steeve

: 7.60 travel mm Tolerance mm : + 0.10

Rated speed rpm : 350

guide sleeve

: 5.50 travel mm : + 0.30Tolerance mm

Rated speed rpm

: 250

quide sleeve

: 2.50 travel mm : +- 0.20Tolerance mm

GUIDE SLEEVE POSITION

control lever

position degree : -2 Rated speed rpm : 600 Rack travel in mm: 15.50

Tolerance mm : +-0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

: 1000 Rated speed rpm

Aneroid pressure

: 1000

Del. quantity

cm3/1000 strokes : 127.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +- 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 6.0

CONTROL LEVER

control lever

position degree : 42.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 15.5 Rated speed rpm : 600

rack travel mm : 13.80 Rated speed rpm : 1252.5 Tolerance  $1/\min$ : +- 7.5

rack travel mm : 4.00 Rated speed rpm : 1300.0 Tolerance 1/min : +- 15.0

rack travel mm : 4.00

: 0.50 rack travel mm : +- 0.50 Tolerance mm Rated speed rpm : 1450

LOW IDLE

control lever

position degree : 12.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250 rack travel mm : 5.5

Rated speed rpm : 100

CRT mm min. : 7.50

Testing:

Rated speed rpm : 250 rack travel mm : 5.50 Tolerance mm : +- 0.10

rack travel mm : 2.00

TORQUE CONTROL

Dimension a mm : 0.30
Rated speed rpm : 1000
rack travel mm : 14.75
Tolerance mm : + 0.05

Rated speed rpm : 600 rack travel mm : 14.85 Tolerance mm : + 0.05

Rated speed rpm : 800 rack travel mm : 14.85 Tolerance mm : ± 0.05

Rated speed rpm : 1200 rack travel mm : 14.35 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500 rack travel mm : 12.25 Tolerance mm : + 0.05

**MEASUREMENT** 

Rated speed rpm : 500

Pressure hPa : 200 rack travel mm : 12.75 Tolerance mm : + 0.05

Pressure hPa : 400 rack travel mm : 13.95 Tolerance mm : + 0.15

Pressure hPa : 1000 rack travel mm : 14.85

Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : 180

Check

speed 1/min : 200

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1000 Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 128.00

Tolerance

cm3/1000 strokes : +- 1.50

Check tolerance

cm3/1000s. : +- 4.00

Spreed Tolerance

cm3/1000 strokes : 5.00

Check tolerance

cm3/1000s. : 7.

Aneroid pressure

hPa : 1000 Rated speed rpm : 800

Del. quantity

cm3/1000 strokes : 128.00

Tolerance

cm3/1000 strokes : + 1.50

Check tolerance

cm3/1000s. : +- 4.00

Rated speed rpm : 1200

Del. quantity

cm3/1000 strokes : 124.50

Tolerance

cm3/1000 strokes : +- 1.50

Check tolerance

cm3/1000s. : +4.00

7.00

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 75.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. : +-3.00

## STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 135.00

Tolerance

cm3/1000 strokes :  $\leftarrow 5.00$ 

Check tolerance

cm3/1000S. : +- 8.00

## LOW IDLE

Rated speed rpm : 250.0

Rack travel in mm : 5.50 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 21.00

Tolerance

cm3/1000 strokes :  $\leftarrow 2.00$ 

Check tolerance

cm3/1000s. :  $\leftarrow 4.50$ 

Spreed Tolerance

cm3/1000 strokes : 3.0

Sheck tolerence

cm3/1000s. : 5.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 24.11.89 : ISO-4113

Combination No. : 0 403 466 121

Injection pump

Pump designation : PES6MW100/120RS1184

EP type number : 0 413 406 171

Governor

Governer design. : RSV375...125UMW2A334

Governer no. : 0 420 085 122

Cust. part No. : 3280646

Customer-spec. information

Customer : CUMMINS

Motor

: 6 BTAA 5.9

Power KW

: 157.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40.0 Tolerance °C :  $\leftarrow 2.0$ 

Overflow valve : 1 417 413 047

Inlet press. bar : 1.50

Test nozzle holde

assembly

: 1 688 901 017

Opening pressure

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.00

x inside diameter: 2.00

x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 31.0

Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : - 1.50

Firing order : 1-5- 3- 6- 2

: - 4

Phasing

: 0-60-120-180-240

: -300 : +- 0.50

Tolerance

Check tolerance \*NW

: **←** 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.85

Tolerance mm:  $\leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 126.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s.

: **←** 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.

: 6.0

Rated speed rpm : 375.0

Rack travel in mm: 6.75 Tolerance mm :  $\leftarrow 0.25$ 

Del. quantity

cm3/1000 strokes : 18.00

Tolerance

cm3/1000 strokes : +- 2.00

Check tolerance

cm3/10:00s. : +- 4.50

Spread

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : -3 Rated speed rpm : 800

Rack travel in mm: 0.65

Tolerance mm :  $\leftarrow 0.35$ 

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

: 800 hPa

Del. quantity

cm3/1000 strokes : 126.00

Tolerance

cm3/1000 strokes : + 1.00

Check tolerance

cm3/1000s. : <del>+-</del> 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.: 6.0 CONTROL LEVER

control lever

position degree : 56.0 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 0.6 Rated speed rpm : 800

: 9.80 rack travel mm Rated speed rpm : 1300.0

Tolerance 1/min : +- 5.0

rack travel mm : 4.00 Rated speed rpm : 1385.0

Tolerance  $1/\min$ :  $\leftarrow$  15.0

rack travel mm : 4.00

: 1.00 rack travel mm Tolerance mm : +- 0.70 Rated speed rpm : 1470

LOW IDLE

control lever

position degree : 32.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 375 rack travel mm : 5.7

Rated speed rpm : 100

CRT mm min. : 19.00

Testing:

: 375 Rated speed rpm rack travel mm : 6.75

Tolerance mm : +- 0.25

TORQUE CONTROL

Rated speed rpm : 1250 rack travel mm : 10.85 Tolerance mm : **←** 0.05

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500 rack travel mm : 9.35 Tolerance mm : + 0.05

# **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 490
rack travel mm : 10.25
Tolerance mm : +- 0.05

Pressure hPa : 550 rack travel mm : 10.55 Tolerance mm : +- 0.15

Fressure hFa : 300 rack travel mm : 10.85 Tolerance mm : +- 0.05

## FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 81.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s. :  $\leftarrow 3.00$ 

Spreed

Tolerance

cm3/1000 strokes : 5.00

Check tolerance

cm3/1000s. : 7.00

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 Tolerance mm : + 1.00

Del. quantity

cm3/1000 strokes : 135.00

Tolerance

cm3/1000 strokes : + 5.00

Check tolerance

cm3/1000s. :  $\leftarrow 8.00$ 

#### LOW IDLE

Rated speed rpm : 375.0

Rack travel in mm : 6.75 Tolerance mm : + 0.25

Del. quantity

cm3/1000 strokes : 18.00

Tolerance

cm3/1000 strokes :  $\leftarrow 2.00$ 

Check tolerance

cm3/1000s. : +- 4.50

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 01.02.90

Test oil

: ISO-4113

Combination No. : 0 403 474 005

Injection pump

Pump designation : PES4MW100/720RS1127

EP type number : 0 413 404 103

Governor

Governer design. : RSV350...750MW0A318

: -4

Governer no.

: 0 420 085 089

Cust. part No. :

Customer-spec. information

Customer : DB

Motor

: 0M364A

Power KW

: 63.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

: 40.0

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.50

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

: 173.5

Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.00

x inside diameter: 3.00

x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 31.0

Tolerance bar : +- 1.0

Prestroke mm : 3.75
Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow 0.10$ 

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order

: 1- 3- 4- 2

Phasing

: 0-90-180-270 : +- 0.50

Tolerance Check

tolerance \*NW

: +- 0.75

BASIC SETTING

Rated speed rpm

: 700

Rack travel in mm : 13.85

Tolerance mm :  $\leftarrow 0.65$ 

Del. quantity

cm3/1000 strokes : 96.00

Tolerance

cm3/1000 strokes : +- 1.00

Check tolerance

cm3/1000s.

: **←** 3.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

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Check tolerance

cm3/1000S.

: 6.0

Rated speed rpm : 350.0

Rack travel in mm: 7.60

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 11.00

Tolerance

cm3/1000 strokes :  $\leftarrow 2.00$ 

Check tolerance

: +- 4.00 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

: -3 position degree Rated speed rpm : 800

Rack travel in mm: 0.65

: **←** 0.35 Tolerance mm

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rom : 700

Del. quantity

cm3/1000 strokes : 96.00

Tolerance

cm3/1000 strokes :  $\leftarrow 1.00$ 

Check tolerance

cm3/1000s. : +- 3.00

Spreed Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.: 6.0

RATED SPEED

: 0.6 rack travel mm : 800

Rated speed rpm

rack travel mm : 4.00 rack travel mm : 4.00

rack travel mm : 1.00

Tolerance mm : +- 0.70 Rated speed rpm : 800

LOW IDLE

control lever

position degree : 65.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 7.6

Testing:

Rated speed rpm : 350

rack travel mm : 7.60

Tolerance mm : +- 0.10

rack travel mm : 2.00

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 13.85 Tolerance mm : +- 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 95.00

Tolerance

cm3/1000 strokes : +- 5.00

Check tolerance

cm3/1000S.: +- 8.00

LOW IDLE

Rated speed rpm : 350.0

Rack travel in mm: 7.60 : +- 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 11.00

Tolerance

cm3/1000 strokes :  $\leftarrow 2.00$ 

Check tolerance cm3/1000s.

: ← 4.00

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. : 5.0

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.07.97 Test oil : ISO 4113

Combination No. : F 000 409 204

Injection pump

Pump designation : PES6A95D410RS2812 EP type number : 9 400 084 028

Governor

Governer design. : RQV350...1300AB1327L

Governer no. : F 000 420 303

Cust. part No. :

Customer-spec. information

Customer : MWM

Motor : 6.10 TCA EURO I

Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.85 Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance  $^{\bullet}NW$  :  $\leftarrow$  0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.15
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 111.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

<b>-</b> 1		
Tolerance cm3/1000 strokes	. 75	+ control lever
CMD/ 1000 SCI ORES	. 3.3	position degree : - 1
Check tolerance		Rated speed rpm : 1480
cm3/1000s.	: 8.0	+
		Rack travel in mm: 16.50
		Tolerance mm : +- 1.30
Rated speed rpm	: 350	<u> </u>
tated speed (piii	. 330	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mo	·	+
Tolerance mm	: <b>←</b> 0.10	+ Rated speed rpm : 1300
Del. quantity	. 14.0	Aneroid pressure
cm3/1000 strokes Tolerance	: 16.0	+ hPa : 900 + Del. quantity
cm3/1000 strokes	: <del>←</del> 2.0	+ cm3/1000 strokes : 111.0
Check tolerance		Tolerance
cm3/1000s.	: <b>←</b> 4.5	+ cm3/1000 strokes : +- 1.0
Spreed		+ Check tolerance
Tolerance	<b>.</b>	+ cm3/1000s. : + 3.0
cm3/1000 strokes	: 5.5	+ Spreed
Check tolerance	: 9.0	† Tolerance
cm3/1 <b>00</b> 0S.	. 7.0	+ cm3/1000 strokes : 3.5 Check tolerance
		theth toterance cm3/1000s. : 8.0
(B) SETTING OF IN	NJECTION PUMP	1 0.0
WITH GOVERNOR	2	+
		+ CONTROL LEVER
GUIDE SLEEVE TRAV	/EL	+ anntal laws
Rated speed rpm	: 800	+ control lever + position degree : 113.0
guide sleeve	. 800	tolerance degree : +- 4.0
travel mm	: 3.95	+ total dies degree
Tolerance mm	: ← 0.25	RATED SPEED
		† rack travel mm : 12.10
Rated speed rpm	: 1350	+ Rated speed rpm : 1360 _
guide sleeve	. 7.30	+ Tolerance 1/min : +- 5
travel mm	: 7.20	†
Tolerance mm	: +- 0.10	+ rack travel mm : 4.00 + Rated speed rpm : 1545
Rated speed rpm	: 300	+ Tolerance 1/min : +- 15
uide sleeve	. 555	- Total and Triming
ravel mm	: 1.05	+ rack travel mm : 0.50
olerance mm	: <b>←</b> 0.25	→ Tolerance mm : ← 0.50
		Rated speed rpm : 1730
ated speed rpm	: 550	†
uide sleeve	. 270	†
ravet mm	: 2.75 : +- 0.25	<b>†</b>
Tolerance mm	0.63	LOW IDLE
lated speed rpm	: 1500	+
uide sleeve		+
ravel mm	: 8.55	+ control lever
Tolerance mm	: +- 0.25	position degree : 68.0
		tolerance degree : +- 4.0
CUIDE OF EEUE DOC!	I T T CAI	Cotting maint want because and
GUIDE SLEEVE POSI	T 1 TOIA	+ Setting point w/out bumper spring
		Rated speed rpm : 100
		I was a shaper class a special

00T 1-	0.50	†	
CRT mm min.	: > 8.50	FUEL DELIVERY C	HARACTERISTICS
Testing:		<u> </u>	
Rated speed rpm	: 350	Aneroid pressur	<b>e</b>
rack travel mm Tolerance mm	: 6.40	+ hPa	: 900
Tolerance mm	: <b>←</b> 0.10	Rated speed rpm	
		+ Del. quantity	
Rated speed rpm	: 390	cm3/1000 stroke	s : 109.0
		+ Tolerance	
TORQUE CONTROL		+ Check tolerance	
Rated speed rpm rack travel mm	: 1300	+ cm3/1900s.	: ÷- 4.0
rack travel mm	: 13.15	+ Spreed	
rack travel mm Tolerance mm	: +- 0.05	+ Tolerance	
		+ cm3/1000 stroke	s: 5.0
Rated speed rpm	: 800	+ Check tolerance	
rack travel mm	: 13.15	- cm3/1000s.	: 8.0
Tolerance mm	: +- 0.05	1	
	<b>.</b>	<u> </u>	
		Aneroid pressur	9
ANEROID/ALTITUDE		⊥ hDa	•
COMPENSATOR TEST		Rated speed rpm	• • 500
CONTROPION (CS)		+ Del. quantity	• 200
		cm3/1000 stroke	s : 52.0
CETTING		· · · · · · · · · · · · · · · · · · ·	S : 32.U
SETTING		+ Tolerance	
	500	+ cm3/1000 stroke	
Rated speed rpm	: 500	+ Check tolerance	
Pressure hPa		- cm3/1000s.	: +- 3.0
rack travel mm		+ Spreed	
Tolerance mm	: <del>+-</del> 0.05	+ Tolerance	
		+ cm3/1900 stroke	s: 3.5
Rated speed rpm	: 500	+ Check tolerance	
Pressure hPa	: -	+ cm3/1000s.	: 8.0
		+	
MEASUREMENT		†	
Rated speed rpm	: 500	STARTING FUEL D	ELIVERY
4		+	
Pressure hPa	: 350	Rated speed rpm	: 100
rack travel mm	: 2.50	+ rack travel mm	<del>-</del>
Tolerance mm	: +- 0.10	Tolerance mm	
		Del. quantity	
Pressure hPa	: 200	cm3/1000 stroke	s : 146.5
rack travel mm	: 1.10	Tolerance	
Tolerance mm	: +- 0.05	cm3/1000 stroke	s · +- 8 n
TO LET GITTE IIII	0.03	Check tolerance	
			: +- 11.0
Cana 2			; <del>**</del> 11.U
Start interlock		†	
		†	
Rated speed rpm		†	
Rated speed rpm	: < 200		
		+ LOW IDLE	
Check		†	
speed 1/min	: > 80	+ Rated speed rpm	: 350
Check		+	
speed 1/min	: < 220	+ Rack travel in	
•		+ Tolerance mm	
		1	- · <del>-</del>

Del. quantity cm3/1000 strokes	:	16.0
Tolerance cm3/1000 strokes	: +-	2.0
Check tolerance cm3/1000s.	: +-	4.5
Spreed Tolerance		
cm3/1000 strokes Check tolerance	:	5.5
cm3/1000s.	:	9.0

#### BOSCH INJ. PUMP TEST SPECIFICATIONS BASIC SETTING Note remarks Del. quantity cm3/1000 strokes : 74.5 Refer to Service Info for test and adjustment instructions. See microcard(s) W400/... Tolerance cm3/1000 strokes : + 0.5Edition : 29.11.96 Test oil : ISO 4113 Check tolerance cm3/1000s. : +- 2.5 Combination No. : 0 400 846 258 Spreed Injection pump Pump designation : PES6A90D410RS2293Z Tolerance EP type number : 0 410 896 037 cm3/1000 strokes : 3.0 Governor Check tolerance Governer design. : RQV300...1425AB740L cm3/1000s. 4.5 : 0 420 212 037 Governer no. Cust. part No. : Rated speed rpm : 300 Customer-spec. information (B) SETTING OF INJECTION PUMP : MB-NFZ WITH GOVERNOR Customer TEST BENCH REQUIREMENTS FULL LOAD DELIVERY AT FULL LOAD STOP Test oil inlet Rated speed rpm : 1375 temp. °C 40 Aneroid pressure Tolerance °C 2.0 Del. quantity cm3/1000 strokes : 74.5 Inlet press. bar : 1.5 Tolerance cm3/1000 strokes : +- 0.5Check tolerance Opening pressure : +-173.5 cm3/1000s. 2.5 bar Tolerance bar : + 1.5 Spreed Tolerance cm3/1000 strokes : 3.0 Check tolerance REMARKS cm3/1000s. 4.5 RATED SPEED (A) INJECTION PUMP SETTING VALUES Set equal delivery quant. rack travel mm : 4.00 per values \_\_\_\_ rack travel mm : 4.00 BEGINNING OF DELIVERY Test pressure bar : 26.0 Tolerance bar : +- 1.0 LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 100

Testing:

rack travel mm : 2.00

Start interlock

Rated speed rpm : > 100

Check

speed 1/min : > 80

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 300

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 10.07.97 Test of ! 10.07.97

Combination No. : 0 400 846 597

Injection pump

Pump designation : PES6A90D410RS2813 EP type number : 0 410 896 089

Governor

Governer design. : RQV300...1250AB1264L

Governer no. : 0 420 212 233

Cust. part No. :

Customer-spec. information Customer : IVECO-FIAT Motor : 8065,25,000

Power KW : 145.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0 40

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance men :  $\leftarrow$  1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 11.30

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 77.0

Tolerance

cm3/1000 strokes : +- 0.5

Check tolerance

: +- 2.5 cm3/1000s.

#### Spreed

To	le	r	ne	ce

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.

7.0

Rated speed rpm : 325

Rack travel in mm: 8.30

Tolerance mm Del. quantity

cm3/1000 strokes :

13.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s.4.0

Spreed

Tolerance

cm3/1000 strokes : 4.5

Check tolerance

cm3/1000s.7.0

# (B) SETTING OF INJECTION PUMP

WITH GOVERNOR

## GUIDE SLEEVE TRAVEL

Rated speed rpm 897

guide sleeve

5.25 travel mm

: +- 0.25 Tolerance mm

300 Rated speed rpm

guide sleeve

0.85 travel mm

Tolerance mm : + 0.25

: 445 Rated speed rpm

guide sleeve

travel mm

2.45

: + 0.25 Tolerance mm

: 540 Rated speed rpm

guide sleeve

3.05 travel mm

: + 0.25 Tolerance mm

Rated speed rpm 1324

guide sleeve

8.25 travel mm

Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

control lever

position degree

Rated speed rpm : 1455

Rack travel in mm: 10.90

Tolerance mm : +- 1.30

# FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm 1250

Aneroid pressure

hPa 700

Del. quantity

cm3/1000 strokes : 77.0

Tolerance

cm3/1000 strokes : +-0.5

Check tolerance

: +cm3/1000s.2.5

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.7.0

## CONTROL LEVER

control lever

position degree : 105.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm 10.30

Rated speed rpm 1320

Tolerance 1/min : +-

rack travel mm 4.00

Rated speed rpm

Tolerance 1/min

rack travel mm 0.50

: +- 0.50 Tolerance mm

Rated speed rpm : 1550

# LOW IDLE

control lever

79.0 position degree

tolerance degree : +-

Setting point w/out bumper spring

Rated speed rpm	: 225
CRT mm min.	; > 10.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 325 : 8.30 : ← 0.10
Rated speed rpm	: 425
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1250 : 11.30 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 400 : 12.85 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 900 : 11.60 : + 0.15
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 400 : 700 : 12.50 : + 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 400 : - : 10.80 : +- 0.05
MEASUREMENT	
Rated speed rpm	: 400
Pressure hPa rack travel mm Tolerance mm	: 350 : 12.10 : ← 0.10
Pressure hPa rack travel mm Tolerance mm	: 320 : 11.65 : ← 0.05

Start interlock			
Rated speed rpm Rated speed rpm	: >	100 220	
Check			
speed 1/min	: >	80	
Check speed 1/min	: <	250	
speed 1/min	: <	250	_

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa Rated speed rpm	: :	700 700
Del. quantity cm3/1000 strokes Tolerance	:	80.0
cm3/1000 strokes Check tolerance	: +	- 1.5
cm3/1000s.	: +	- 3.5

Aneroid pressure hPa Rated speed rpm	:		- 500
Del. quantity cm3/1000 strokes Tolerance	:		51.5
cm3/1000 strokes Check tolerance	:	+	0.5
cm3/1000s.	:	+-	2.5

# STARTING FUEL DELIVERY

ESS test: With 12 V solenoid activated, rack must reach start position in max. control lever setting.

Rated speed rpm	:		100
rack travel mm	:		20.50
Tolerance mm	:	+-	1.00
Del. quantity			
cm3/1000 strokes	:		115.0
Tolerance			
cm3/1000 strokes	:	+-	7.5
Check tolerance			
cm3/1000s.	:	+	10.0

# LOW IDLE

Rated speed rpm : 325 8.30 Rack travel in mm : : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 13.0 Tolerance cm3/1000 strokes : +-2.0 Check tolerance cm3/1000s. 4.0 Spreed Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. 7.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) H400/...

: 16.07.97 : ISO 4113 Edition Test oil

Combination No. : 0 400 864 108

Injection pump

Pump designation : PES4A95D410/3RS2789

EP type number : 0 410 894 995

Governor

Governer design. : RS325...1250ADC916L

Governer no. : 0 420 220 014

Cust. part No. : 0423 2128 KY

Customer-spec. information Customer : KHD-DMI : F4L913 : 59.0 Motor Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure that the state of the state

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : +- 0.05 Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-3-4-2

: 0-90-180-270 : +- 0.50 Phasing

Tolerance

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 11.35 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000s. : <del>←</del> 3.0

Spreed

Tolerance	+ Check tolerance
cm3/1000 strokes : 3.5	cm3/1000s. : 8.0
Check tolerance cm3/1000S. : 8.0	
	CONTROL LEVER
705	control lever
Rated speed rpm : 325	+ position degree : 87.0 + tolerance degree : +- 4.0
Rack travel in mm : 8.80	+
Tolerance mm : + 0.10	+ RATED SPEED
Del. quantity	+ rack travel mm : 10.35
cm3/1000 strokes : 11.5	+ Rated speed rpm : 1295
Tolerance	+ Tolerance 1/min : +- 5
cm3/1000 strokes : +- 2.0	
Check tolerance	rack travel mm : 4.00
cm3/1000s. : +- 4.5	+ Rated speed rpm : 1355
Spreed	+ Tolerance 1/min : + 15
Tolerance	
cm3/1000 strokes : 5.5	rack travel mm : 0.85
Check tolerance	+ Tolerance mm : +- 0.55
cm3/1000s. : 9.0	+ Rated speed rpm : 1505
· · · · · · · · · · · · · · · · · · ·	That of the second seco
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
CHARE CLEENE DOCTION	† Testing:
GUIDE SLEEVE POSITION	+ Rated speed rpm : 325
	+ Rated speed rpm : 325 + rack travel mm : 8.80
control lever	+ Tolerance mm : +- 0.10
position degree : FREE	
Rated speed rpm : 800	
nacoa opoca (pin	+ TORQUE CONTROL
Rack travel in mm : 0.50	+ Rated speed rpm : 1250
Tolerance mm : + 0.20	+ rack travel mm : 11.35
	+ Tolerance mm : + 0.05
governor spring	+
pre-tension	+
click setting x : 3.00	+
	+
FULL LOAD DELTUEDY AT FUEL LOAD STOD	†
FULL LOAD DELIVERY AT FULL LOAD STOP	+ STARTING FUEL DELIVERY
Rated speed rpm : 1250	T STARTING FOEL DELIVERT
Aneroid pressure	Rated speed rpm : 100
hPa : -	+ rack travel mm : 20.25
Del. quantity	Tolerance mm : + 0.75
cm3/1000 strokes : 76.0	+ Del. quantity
Tolerance	+ cm3/1000 strokes : 120.0
cm3/1000 strokes : +- 1.0	+ Tolerance
Check tolerance	+ cm3/1000 strokes : + 7.5
cm3/1000s. : +- 3.0	+ Check tolerance
Spreed	- cm3/1000s. : +- 10.0
Tolerance	1
cm3/1000 strokes : 3.5	1
CHALLED DELOCED 1 417	{

# LOW IDLE

Rated speed rpm	:	325	
Rack travel in mm Tolerance mm Del. quantity	: +-	8.80 0.10	
cm3/1000 strokes Tolerance	:	11.5	
cm3/1000 strokes	: +-	2.0	
Check tolerance cm3/1000s. Spreed	: +	4.5	
Tolerance cm3/1000 strokes Check tolerance	:	5.5	
cm3/1000s.	:	9.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 10.07.97 : ISO 4113

Combination No. : 0 400 866 197

Injection pump

Pump designation : PES6A100D320/3RS2691

: -4 EP type number : 9 410 230 030

Governor

Governer design. : RSV450...1100A0C2238

: -3R

Governer no. : 0 420 233 330

Cust. part No. :

Customer-spec. information

Customer : CDC

Motor

: 6 CT 830

Power KW : 151.0

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C

40

temp. °C : 40 Tolerance °C : ← 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

har

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter:

x length mm : 600

2.0

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 28.0

Tolerance bar : + 1.0

Prestroke mm : 2.85 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

: +- 0.75 tolerance \*NW

Start of delivery mark

\*NW after s.o.d. : 11.00 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

	+
Rack travel in mm : 12.15 Tolerance mm : +- 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 120.5	Rated speed rpm : 1100 Aneroid pressure
Tolerance : + 1.0	+ hPa : 900 + Del. quantity + cm3/1000 strokes : 120.5
Check tolerance cm3/1000s. ; +- 3.5	Tolerance + cm3/1000 strokes : +- 1.0 + Check tolerance
Spreed	+ cm3/1000s. : + 3.5 + Spreed
Tolerance cm3/1000 strokes : 4.0	Tolerance cm3/1000 strokes : 4.0 Check tolerance
Check tolerance 6.5	+ cm3/1000s. : 6.5
	CONTROL LEVER
Rated speed rpm : 450	t control lever position degree : 96.0
Rack travel in mm : 5.70 Tolerance mm : + 0.10 Del. quantity	tolerance degree : +- 4.0  RATED SPEED
cm3/1000 strokes : 18.0 Tolerance	rack travel mm : 4.00
cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000S. : +- 4.5	Rated speed rpm : 1210 Tolerance 1/min : + 15
Spreed Tolerance	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : 6.0 Check tolerance cm3/1000S. : 8.0	Rated speed rpm : 1143 rack travel mm : 11.15
	Rated speed rpm : 1200 Tolerance 1/min : +- 5
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ rack travel mm : 4.00 + rack travel mm : 0.85
	Tolerance mm : + 0.55 Rated speed rpm : 1360
GUIDE SLEEVE POSITION	† † Rated speed rpm : 1144
control lever position degree : - 3	† rack travel mm : 11.15
Rated speed rpm : 800  Rack travel in mm : 0.50	Rated speed rpm : 1201 Tolerance 1/min : + 5 rack travel mm : 4.00
Tolerance mm : +- 0.20	rack travel mm : 0.85
governor spring  pre-tension  click setting x : 4.25	Tolerance mm : + 0.55
THE THE PARTY OF T	Rated speed rpm : 1145 rack travel mm : 11.15

		1	
Rated speed rpm Tolerance 1/min rack travel mm	<b>: +-</b> 5	Rated speed rpm rack travel mm Tolerance mm	: 450 : 5.70 : ← 0.10
rack travel mm Tolerance mm		rack travel mm Rated speed rpm Tolerance 1/min	: 515
Rated speed rpm rack travel mm Rated speed rpm	: 11.15 : 1203	TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1100 : 12.15
Tolerance 1/min rack travel mm		+	
rack travel mm Tolerance mm	: 0.85 : +- 0.55	Rated speed rpm rack travel mm Tolerance mm	: 13.10 : +- 0.10
Rated speed rpm rack travel mm		Rated speed rpm rack travel mm Tolerance mm	: 11.15
Rated speed rpm Tolerance 1/min rack travel mm	: <del></del> 5	ANEROID/ALTITUDE COMPENSATOR TEST	
rack travel mm Tolerance mm		SETTING	
Rated speed rpm rack travel mm	: 11.15	Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900
Rated speed rpm Tolerance 1/min rack travel mm	: 1205 : +- 5 : 4.00	Rated speed rpm Pressure hPa rack travel mm	: 500 : - : 10.45
rack travel mm Tolerance mm	: 0.85 : ← 0.55	Tolerance mm  MEASUREMENT	: ← 0.10
LOW IDLE		Rated speed rpm	: 500
control lever position degree tolerance degree	: 74.0 : + 4.0	Pressure hPa rack travel mm Tolerance mm	: 560 : 12.35 : + 0.20
	out bumper spring	Pressure hPa rack travel mm	: 11.45
Rated speed rpm rack travel mm Tolerance mm	: 5.20	Tolerance mm	
Rated speed rpm	: 100	+ FUEL DELIVERY CHA	ARACTERISTICS
CRT man main.	: > 19.50	Aneroid pressure	: 900
Testing:		Rated speed rpm	

Del. quantity cm3/1000 strokes : 137.5 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance cm3/1000s. : +- 4.0 Aneroid pressure nPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 82.5 Tolerance cm3/1000 strokes :  $\leftarrow$  1.0 Check tolerance 3.0 cm3/1000s.STARTING FUEL DELIVERY Rated speed rpm 100 rack travel mm 20.00 Tolerance mm : +- 1.00 Del. quentity cm3/1000 strokes : 146.0 Tolerance cm3/1000 strokes :  $\leftarrow$  10.0 Check tolerance cm3/1000s. : +- 13.0 LOW IDLE Rated speed rpm : 450 Rack travel in mm: 5.70 : **←** 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance cm3/1000s. : +- 4.5 Spreed Tolerance 6.0 cm3/1000 strokes : Check tolerance cm3/1000s. : 8.0 End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 30.04.97 Test oil : ISO 4113

Combination No. : 0 400 866 219

Injection pump

Pump designation : PES6A95D12ORS2860

EP type number : 0 410 896 889

Governor

Governer design. : RSV410...1050A0C2260

: -3R

Governer no.

: 0 420 233 344

Cust. part No. : 32 82 684

Customer-spec. information Customer : CUMMINS Motor : 6 BT

Power KW

: 113.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : ← 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

K04

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm

: 2.15 : +- 0.05 Tolerance mm

Check

: ← 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm: + 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 11.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 10.90 Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 97.0	+ Aneroid pressure + hPa : 1100 + Del. quantity
Tolerance cm3/1000 strokes : + 1.0	cm3/1000 strokes : 97.0 Tolerance
Check tolerance	cm3/1000 strokes : +- 1.0 Check tolerance
cm3/1000s. : +- 3.0	cm3/1000s. : +- 3.0 Spreed
Spreed	Tolerance : 3.5
Tolerance cm3/1000 strokes : 3.5	Check tolerance : 8.0
Check tolerance cm3/1000s. : 8.0	
	CONTROL LEVER
Rated speed rpm : 430	+ control lever + position degree : 90.0 + tolerance degree : +- 4.0
Rack travel in mm: 7.20 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 21.0	RATED SPEED : 9.90
Tolerance cm3/1000 strokes : +- 2.0	Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : +- 4.5 Spreed Tolerance	rack travel mm : 4.00 Rated speed rpm : 1140 Tolerance 1/min : +- 15
cm3/1000 strokes : 5.5 Check tolerance cm3/1000s. : 9.0	rack travel mm : 0.85 Tolerance mm : - 0.55 Rated speed rpm : 1330
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1175 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 70.0 tolerance degree : +- 4.0
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring pre-tension click setting x : 1.75	Rated speed rpm : 430 rack travel mm : 6.70 Tolerance mm : + 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 100
Rated speed rpm : 1050	CRT mm min. : > 19.50
Nated Speed ( piii . 1000	Testing:

Rated speed rpm	: 430	Del. quantity cm3/1000 strokes : 98.0
rack travel mm Tolerance mm	: 7.20 : +- 0.10	+ Tolerance + cm3/1000 strokes : +- 1.0
rack travel mm Rated speed rpm		Check tolerance cm3/1000s. : +- 3.0
Tolerance 1/min	: +- 30	Aneroid pressure
TORQUE CONTROL		+ hPa : - + Rated speed rpm : 500
Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.90	Del. quantity cm3/1000 strokes : 67.0
Tolerance mm	: +- 0.05	+ Tolerance + cm3/1000 strokes : + 1.0
Rated speed rpm	: 450	+ Check tolerance
Rated speed rpm rack travel mm Tolerance mm	: 11.80 : + 0.10	+ cm3/1000s. : +- 3.0
Rated speed rpm rack travel mm Tolerance mm	: 550 : 11.50	STARTING FUEL DELIVERY
Tolerance mm	: +- 0.10	+ Rated speed rpm : 100
		rack travel mm : 14.00
ANEROID/ALTITUDE		+ Tolerance mm : +- 0.20
COMPENSATOR TEST		<pre>Del. quantity     cm3/1000 strokes : 115.0     Tolerance</pre>
SETTING		+ cm3/1000 strokes : +- 7.5 + Check tolerance
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 450 : 1100	cm3/1000s. : +- 10.0
rack travel nm	: 11.80	Ţ
Tolerance mm	: <b>←</b> 0.05	<u> </u>
Rated speed rpm Pressure hPa	: 500	LOW IDLE
rack travel mm Tolerance mm	: 9.80	Rated speed rpm : 430
MEASUREMENT		+ Rack travel in mm : 7.20 + Tolerance mm : + 0.10
Rated speed rpm	: 450	+ Del. quantity + cm3/1000 strokes : 21.0 + Tolerance
Pressure hPa	: 420	- cm3/1000 strokes : +- 2.0
rack travel mm	: 10.10	- Check tolerance
Tolerance mm		+ cm3/1000s. : +- 4.5 + Spreed
Pressure hPa		+ Tolerance
rack travel mm Tolerance mm	: 10.95 : +- 0.05	+ cm3/1000 strokes : 5.5 + Check tolerance
70tti di let ilili	0.03	cm3/1000s. : 9.0
FUEL DELIVERY CHA	RACTERISTICS	
Aneroid pressure	: 1100	End of test specification sheet
		·

K06

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 15.07.97 Edition : 15.07.97 Test oil : ISO 4113

Combination No. : 0 400 876 188

Injection pump

Pump designation : PES6A80D410RS2085X

EP type number : 0 410 886 045

Governor

Governer design. : RSV350...1400A2C1052

Governer no. : 0 420 232 406

Cust. part No. :

Customer-spec. information Customer : MB-NFZ

: 34352 Motor Power KH : 80.9

TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet

temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzie holde

: 0 681 343 009 assembly

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240

: -300

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 9.05 Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 52.5

Tolerance

cm3/1000 strokes : +- 0.5

Check tolerance

cm3/1000s. : +- 2.0

Spreed

Tolerance

cm3/1000 strokes : 2.5

Check tolerance 4.0 cm3/1000s.

Rated speed rpm : 350

Del. quantity

cm3/1000 strokes : 11.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0 Check tolerance

cm3/1000s. : +- 2.5

K07

Tolerance 1/min : +- 15 Tolerance cm3/1000 strokes : 2.0 Check tolerance cm3/1000s. : 3.5 LOW IDLE (B) SETTING OF INJECTION PUMP Setting point w/out bumper spring WITH GOVERNOR Rated speed rpm : 350 rack travel mm : 6.70 Tolerance mm : + 0.10 GUIDE SLEEVE POSITION Rated speed rpm : 100 control lever CRT mm min. : > 19.00 position degree : - 3 Rated speed rpm : 800 Testing: rack travel mm : 2.00 Rated speed rpm : 530 Rack travel in mm: 0.50 2.00 Tolerance mm : + 0.20 Tolerance 1/min : + 30 governor spring pre-tension click setting x : 5.30TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 9.05 Tolerance mm : + 0.05 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1400 Rated speed rpm : 500 rack travel mm : 9.95 rack travel mm : 9.95 Tolerance mm : + 0.05 Anaroid pressure hPa Del. quantity Rated speed rpm : 850 rack travel mm : 9.60 Tolerance mm : +- 0.10 cm3/1000 strokes : 52.5 Tolerance cm3/1000 strokes :  $\leftarrow$  0.5 Check tolerance cm3/1000s. : +- 2.0 Rated speed rpm : 950 rack travel mm : 9.25 Tolerance mm : + 0.15 Spreed Tolerance cm3/1000 strokes : 2.5 Check tolerance cm3/1000s. : 4.0 FUEL DELIVERY CHARACTERISTICS CONTROL LEVER Aneroid pressure hPa control lever Rated speed rpm : 500 position degree : 112.0 tolerance degree : + 4.0 Del. quantity cm3/1000 strokes : 48.0 RATED SPEED Tolerance cm3/1000 strokes : +- 1.0 cm3/1000 service Check tolerance : +- 3.0 rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1680 Aneroid pressure 4.00 rack travel mm : Rated speed rpm : 1530 hPa

Spreed

Rated speed rpm Del. quantity	: 850		
- 44000	: 50.0		
cm3/1000 strokes Check tolerance	: <b>←</b> 1.5		
cm3/1000s.	: +- 3.5		
STARTING FUEL DELIVERY			

:		700
:		14.40
:	+	0.20
:		83.0
:	+-	5.0
:	+	8.0
	:	-

# LOW IDLE

Rated speed rpm Del. quantity	:	350	
cm3/1000 strokes	:	11.0	
Tolerance cm3/1000 strokes	: +-	1.0	
Check tolerance	•		
cm3/1000s.	: +-	2.5	
Spreed Tolerance			
cm3/1000 strokes	:	2.0	
Check tolerance cm3/1000s.	:	3.5	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 10.07.97 Edition : ISO 4113 Test oil

Combination No. : 0 400 876 293

Injection pump

Pump designation : PES6A90D410RS2596 EP type number : 0 410 896 073

Governor

Governer design. : RSV350...1400A081141

Governer no. : 0 420 232 423

Cust. part No. :

Customer-spec. information Customer : MB-NFZ Motor : OM352A Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet

temo. °C : +- 2.0 Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

bar : 173.5 Tolerance bar : ← 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.05 Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300 : +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm: 11.95

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 74.5

Tolerance

cm3/1000 strokes : + 0.5

Check tolerance

: +- 2.5 cm3/1000s.

Spreed

Tolerance : 3.0	t
	CONTROL LEVER
Check tolerance cm3/1000s. : 4.5	control lever position degree : 114.0 tolerance degree : +- 4.0
Rated speed rpm : 350 Del. quantity	RATED SPEED
cm3/1000 strokes : 11.0 Tolerance	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000 strokes : +- 1.0 Check tolerance	Rated speed rpm : 1680
cm3/1000S. : ← 3.0 Spreed Tolerance	rack travel mm : 4.00 Rated speed rpm : 1535 Tolerance 1/min : + 15
cm3/1000 strokes : 2.5 Check tolerance	
cm3/1000s. : 4.5	İ
(B) SETTING OF INJECTION PUMP	T LOW IDLE
WITH GOVERNOR	Setting point w/out bumper spring
	Rared speed rpm : 350
GUIDE SLEEVE POSITION	+ rack travel mm : 8.10 + Tolerance mm : + 0.10
	+
control lever	Rated speed rpm : 100
position degree : - 3 Rated speed rpm : 800	CRT mm min. : > 16.00
rated speed (piii . 000	Testing:
Rack travel in mm: 0.50 Tolerance mm: + 0.20	+ rack travel mm : 2.00
governor spring	+ Rated speed rpm : 500 + Tolerance 1/min : +- 30
pre-tension click setting x : 4.00	<u> </u>
- The second of	TORQUE CONTROL Rated speed rpm : 1400
FULL LOAD DELIVERY AT FULL LOAD STOP	+ rack travel mm : 11.95
Rated speed rpm : 1400	Tolerance mm : + 0.05
Aneroid pressure	Rated speed rpm : 900
hPa : 700	Rated speed rpm : 900 rack travel mm : 13.05 Tolerance mm : + 0.05
Del. quantity cm3/1000 strokes : 74.5	+ Tolerance mm : +- 0.05
Tolerance	Rated speed rpm : 1050
cm3/1000 strokes : +- 0.5 Check tolerance	+ rack travel mm : 12.80 + Tolerance mm : + 0.10
cm3/1000s. : +- 2.5	+
Spreed	Rated speed rpm : 1260
Tolerance cm3/1000 strokes : 3.0	rack travel mm : 11.95 Tolerance mm : + 0.05
Check tolerance	1,000, 0,100, 1,500
cm3/1000s. : 4.5	1

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SEITING

Rated speed rpm : 500 Pressure hPa : 700 rack travel mm : 13.15 Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 11.35
Tolerance mm : +- 0.05

#### **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 340 rack travel mm : 11.70 Tolerance mm : + 0.10

Pressure hPa : 500 rack travel mm : 12.65 Tolerance mm : +- 0.05

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 700
Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 76.5
Tolerance
cm3/1000 strokes : +- 1.5

Check tolerance cm3/1000s. : +- 4.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 50.5

Tolerance

cm3/1000 strokes : + 0.5

Check tolerance

cm3/1000s. : +- 2.5

#### STARTING FUEL DELIVERY

Rated speed rpm	:		100
rack travel mm	:		16.30
Tolerance mm	:	+	0.20
Del. quantity			
cm3/1000 strokes	:		83.0
Tolerance			
cm3/1000 strokes	:	+-	5.0
Check tolerance			
cm3/1000s.	:	+	8.0

#### LOW IDLE

Rated speed rpm Del. quantity	•	350
cm3/1000 strokes Tolerance	:	11.0
cm3/1000 strokes	: +-	1.0
Check tolerance cm3/1000S. Spreed	: +-	3.0
Tolerance cm3/1000 strokes Check tolerance	:	2.5
cm3/1000s.	:	4.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 14.07.97 : ISO 4113

Combination No. : F 002 A0Z 050

Injection pump

Pump designation : PES6A95D320/3RS2916

EP type number : F 002 A10 010

Governor

Governer design. : RSV425...1050A0C930R

Governer no. : F 002 A20 236

Cust. part No. : 328 3917

Customer-spec. information Customer : CUMMINS motor Power KW : 68T : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.85 Tolerance mm : + 0.05

Cneck

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.00 Tolerance : +- 0.10

Check

tolerance \*NW : +- 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.25 Tolerance mm : +- 0.05

		+ Aneroid pressure	
Del. quantity		+ hPa	: 900
cm3/1000 strokes	: 98.2	+ Del. quantity	
		+ cm3/1000 strokes	: 98.2
olerance m3/1000 strokes	: +- 1.0	+ Tolerance + cm3/1000 strokes	10
ID TOOU STOKES	1.0	Check tolerance	: +- 1.0
heck tolerance	·	- cm3/1000s.	: +- 3.0
m3/1000s.	: +- 3.0	3- Spreed	
		+ Tolerance	
preed		+ cm3/1000 strokes	: 4.0
Tolerance		+ Check tolerance + cm3/1000s.	: 6.0
m3/1000 strokes	: 4.0	Ţ (11157 1000s.	. 0.0
		+	
Check tolerance			
m3/1000s.	: 6.0	+ CONTROL LEVER	
		† control lever	
		→ position degree	: 100.0
ated speed rpm	: 425	tolerance degree	
·		+	
Rack travel in mm		+ RATED SPEED	40.05
Tolerance mm	: +- 0.10	+ rack travel mm	
el. quantity m3/1000 strokes	: 18.5	Rated speed rpm Tolerance 1/min	
mb/1000 strokes olerance	. 10.5	T Total and Thinh	· *** 2
m3/1000 strokes	: +- 2.0	rack travel mm	: 4.50
heck tolerance		+ Rated speed rpm	: 1170
m3/1000s.	: +- 4.5	Tolerance 1/min	
preed		<b>†</b>	
olerance	. 40	+ rack travel mm	: 0.85
m3/1000 strokes theck tolerance	: 6.0	Tolerance mm Rated speed rpm	: +- 0.55 : 1275
m3/1000s.	: 8.0	Nated speed (pill	. 1213
	. <del></del>	† rack travel mm	: 4.50
		+ Rated speed rpm	: 1170
B) SETTING OF IN	JECTION PUMP	+ Tolerance 1/min	: <del>←</del> 15
ITH GOVERNOR		‡	
GUIDE SLEEVE POSI	TION	LOW IDLE	
TOTAL CELETE , VOX	- <del></del>	1	
nemtral lawar		t control lever	
control lever position degree	: FREE	position degree	: 80.0
ated speed rpm		tolerance degree	
aran a <b>laa</b> an iban		+	
ack travel in mm		+ Control lever dif	ference
olerance mm	: <b>←</b> 0.20	Grad	: 20.0
<b>•</b>		tolerance degree	: + 6.0
overnor spring		t Cotting maint	ut humana anai
re-tension lick setting x	: 2.75	Setting point w/o	ut bumper spring
CIEN GELLING A	. 6	Rated speed rpm	: 425
		+ rack travel mm	: 4.55
ULL LOAD DELIVERY	Y AT FULL LOAD STOP	Tolerance mm	
	. 4050	† <b>Date</b> d and a second and	. 100
ated speed rpm	: 1050	+ Rated speed rpm	: 100

CRT mm min.	: > 19.00	+ Tolerance + cm3/1000 strokes : +- 2.0
Testing:		+ Check tolerance + cm3/1000S. : +- 4.0
Rated speed rpm rack travel mm Tolerance mm rack travel mm Rated speed rpm Tolerance 1/min	: 5.05 : ← 0.10 : 2.00 : 500	Aneroid pressure hPa : - Rated speed rpm : 650 Del. quantity cm3/1000 strokes : 82.9 Tolerance cm3/1000 strokes : + 1.0
TORQUE CONTROL Rated speed rpm rock travel mm Tolerance mm	: 11.25	Check tolerance : +- 3.0
Rated speed rpm rack travel mm Tolerance mm	: 11.80	STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : +- 0.50 Del. quantity
ANEROID/ALTITUDE COMPENSATOR TEST		<pre>- cm3/1000 strokes : 121.5 - Tolerance - cm3/1000 strokes : +- 10.0</pre>
SETTING		+ Check tolerance - cm3/1000S. : +- 15.0
Rated speed rpm Pressure hPa		<b>T</b>
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: - 10.00	LOW IDLE Rated speed rpm : 425
MEASUREMENT		Rack travel in mm: 5.05 Tolerance mm: +- 0.10
Rated speed rpm	: 650	+ Del. quantity + cm3/1000 strokes : 18.5 + Tolerance
Pressure hPa rack travel mm Tolerance mm	: 650 : 11.65 : + 0.20	cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000s. : +- 4.5
Pressure hPa rack travel mm Tolerance mm	: 400 : 10.70 : ← 0.20	Spreed Tolerance cm3/1000 strokes: 6.0 Check tolerance
FUEL DELIVERY CHA	ARACTERISTICS	- cm3/1000s. : 8.0
Aneroid pressure hPa Rated speed rpm	: 900 : 800	End of test specification sheet
Del. quantity cm3/1000 strokes	: 106.2	‡

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 06.01.97 : ISO 4113

Combination No. : 0 403 466 174

Injection pump

Pump designation : PES6MW100/120RS1238

EP type number : 0 413 406 237

Governor

Governer design. : RSV500...1100/4WDA398

Governer no. : 0 420 085 287

Cust. part No. : 3930122

Customer-spec, information

Customer : CDC

Motor

: 6 CT

Power KW

: 112.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar :

2.0

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar

: +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

K16

x inside diameter : 2.0
x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05

Check

tolerance mm : ← 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-126-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 7.50

Tolerance

: **←** 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel

15.00

Difference \* CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

+	
Rack travel in mm: 9.95 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 112.0	Rated speed rpm : 1100 Aneroid pressure
Tolerance cm3/1000 strokes : + 1.0	hPa : - Del. quantity cm3/1000 strokes : 112.0
Check tolerance cm3/1000s. : + 4.0	Tolerance cm3/1000 strokes : +- 1.0 Check_tolerance
Spreed	cm3/1000s. : +- 4.0 Spreed
Tolerance cm3/1000 strokes : 4.0	Tolerance cm3/1000 strokes : 4.0 Check tolerance
Check tolerance cm3/1000s. : 7.5	cm3/1000s. : 7.5
	CONTROL LEVER
Rated speed rpm : 500	control lever position degree : 102.0
Rack travel in mm: 5.60 + Tolerance mm: + 0.10 + Del. quantity	tolerance degree : +- 4.0  RATED SPEED
cm3/1000 strokes : 25.0 + Tolerance	rack travel mm : 8.90 Rated speed rpm : 1165
cm3/1000 strokes : +- 2.0 +- Check tolerance +-	Tolerance 1/min : +- 5
cm3/1000s. : +- 4.5 +- Spreed +- Tolerance +-	rack travel mm : 6.00 Rated speed rpm : 1230 Tolerance 1/min : +- 5
<pre>cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 5.5</pre>	rack travel mm : 1.00 Tolerance mm : +- 0.70
cm3/1000s. : 5.5	Tolerance mm : +- 0.70 Rated speed rpm : 1400
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 6.00 Rated speed rpm : 1230 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	
control lever	LOW IDLE
position degree : -3 Rated speed rpm : 800	control lever
Rack travel in mm : 0.50 Tolerance mm : + 0.20	position degree : 88.0 tolerance degree : +- 4.0
governor spring +	Control lever difference Grad: 14.0 tolerance degree: +- 4.0
click setting x : 3.50	Setting point w/out bumper spring

Rated speed rpm rack travel mm Tolerance mm	+-	5.10 0.10	
Rated speed rpm	:	100	
CRT mm min.	; >	19.00	
Testing:			
Rated speed rpm rack travel mm Tolerance mm	:	500 5.60 0.10	
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	:	1100 9.95 0.05	
Rated speed rpm rack travel mm Tolerance mm	:	750 10.60 0.10	
FUEL DELIVERY CHA  Aneroid pressure	RACTER		-
FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity	RACTER	RISTICS 750	_
FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	RACTER	750 122.0	
FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	RACTER	RISTICS 750	_
FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: : : : +-	750 122.0 2.0 5.0	-
FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	RACTER	750 122.0 2.0	-
FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: +- : +-	750 122.0 2.0 5.0 6.0	-

Del. quantity cm3/1000 strokes : 177.0

cm3/1000 strokes :  $\leftarrow$  10.0

: +- 13.0

LOW IDLE			
Rated speed rpm	:	500	
Rack travel in mm Tolerance mm Del. quantity	: +-	5.60 0.10	
cm3/1000 strokes Tolerance	:	25.0	
cm3/1000 strokes Check tolerance	: +-	2.0	
cm3/1000S. Spreed Tolerance	: +-	4.5	
cm3/1000 strokes Check tolerance	:	3.5	
cm3/1000s.	:	5.5	

End of test specification sheet

Tolerance

Check tolerance cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 16.07.97 : ISO 4113

Combination No. : 9 400 030 732

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1250A0c845R

Governer no. : 9 420 034 711

Cust. part No. : 3929407

Customer-spec. information

Customer : CDC
Motor : 68T
Power KW : 97.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

: 40

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

REMARKS

x inside diameter : 2.0 x length mm : 600

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.85 Tolerance mm : + 0.05

Check

: + 0.10 tolerance mm

Rack travel in mm : 10.50

Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 Phasing

: -300

Start of delivery blocking

\*NW after s.o.d. : 7.00 Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.80 Tolerance mm : + 0.05

	+ Aneroid pressure
Del. quantity	+ hPa : -
cm3/1000 strokes : 88.5	+ Del. quantity + cm3/1000 strokes : 88.5
Tolerance	Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance	+ cm3/1000s. : +- 3.0
$cm3/1090s$ . : $\leftarrow$ 3.0	Spreed
	+ Tolerance
Spreed	+ cm3/1000 strokes : 3.5
Tolerance	+ Check tolerance + cm3/1000s. : 6.0
cm3/1000 strokes : 3.5	
	1
Check tolerance	
cm3/1000s. : 6.0	+ CONTROL LEVER
	t control lever
	+ position degree : 117.3
Rated speed rpm : 475	tolerance degree : +- 4.0
	+
Rack travel in mm : 5.10	RATED SPEED
Tolerance mm : + 0.10	+ rack travel mm : 9.80
Del. quantity	+ Rated speed rpm : 1310
cm3/1000 strokes : 18.5 Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : +- 2.0	rack travel mm : 5.50
Check tolerance	+ Rated speed rpm : 1370
cm3/1000s. : +- 4.5	+ Tolerance 1/min : +- 5
Spreed	+
Tolerance	† rack travel mm : 0.85
cm3/1000 strokes : 3.5	+ Tolerance mm : +- 0.55
Check tolerance cm3/1000s. : 5.5	Rated speed rpm : 1500
cm3/1000s. : 5.5	rack travel mm : 5.50
	Rated speed rpm : 1370
(B) SETTING OF INJECTION PUMP	+ Tolerance 1/min : +- 15
WITH GOVERNOR	+
	†
	†
GUIDE SLEEVE POSITION	LOW IDLE
	+
	+
control lever	t control lever
position degree : - 3	position degree : 91.0
Rated speed rpm : 800	tolerance degree : +- 4.0
Rack travel in mm : 0.50	Control lever difference
Tolerance mm : + 0.20	+ Grad : 26.0
	tolerance degree : +- 4.0
governor spring	† • • • • • • • • • • • • • • • • • • •
pre-tension	Setting point w/out bumper spring
click setting x : 5.00	Rated speed rpm : 475
	rack travel mm : 4.60
FULL LOAD DELIVERY AT FULL LOAD STOP	+ Tolerance mm : + 0.10
	+
Rated speed rpm : 1250	+ Rated speed rpm : 100

CRT mm min. : > 19.00 Testing: 475 Rated speed rpm rack travel mm 5.10 : + - 0.10Tolerance mm TORQUE CONTROL : 1250 Rated speed rpm rack travel mm : 10.80 : **←** 0.05 Tolerance mm Rated speed rpm 800 rack travel mm 11.20 : **←** 0.10 Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING 800 Rated speed rpm : Pressure hPa MEASUREMENT 800 Pressure hPa : 10.80 rack travel mm : : **←** 0.30 Tolerance mm FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa 800 Rated speed rpm Del. quantity 94.5 cm3/1000 strokes : Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance 4.0 cm3/1000S.

starting fuel delivery

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 120.5

Tolerance cm3/1000 strokes : +- 10.0 Check tolerance cm3/1000s. : +- 15.0

EJCI WOJ Rated speed rpm : 475 Rack travel in mm: 5.10 : + 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 18.5 Tolerance cm3/1000 strokes : +-2.0 Check tolerance cm3/1000s. 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000s.: 5.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 16.07.97 : ISO 4113

Combination No. : 0 401 846 843

Injection pump

Pump designation : PE6P120A720RS3069 EP type number : 0 411 826 712

Governor

Governer design. : RQV300...1000PA501

: -4

Governer no.

: 0 421 813 609

Cust. part No. :

Customer-spec. information

Customer

: IVECO-FIAT

Motor

: 8210.22.371

TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Test oil inlet

temp. °C

40

Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar :

1.5

Tolerance bar

: **←** 0.1

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

Tolerance bar

208.5

: **←** 1.5

Test lines

: 1 680 750 075

Outside diameter :

8.0

K22

x inside diameter: 3.0 : 1000

x length mm

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

26.0 Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300

: -- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Del. quantity

cm3/1000 strokes : 206.0

1.0

Tolerance

cm3/1000 strokes : +-

Check tolerance

cm3/1000s.

4.0 : +-

Spreed

Tolerance

cm3/1000 strokes :

5.0

Check tolerance

cm3/1000s.

9.0

:

†	Check tolerance
Rated speed rpm : 300	cm3/1000s. : +- 4.0 Spreed
Rack travel in mm:	Tolerance cm3/1000 strokes : 5.0
Tolerance mm : + + + + + + + + + + + + + + + + +	Check tolerance cm3/1000s. : 9.0
cm3/1000 strokes : 20.0	
cm3/1000 strokes : + 3.0 Check tolerance	CONTROL 4 FUED
cm3/1000s. : +- 6.0	CONTROL LEVER
Spreed +	control lever position degree : 120.0
cmざ/1000 strokes : 8.0 + Check tolerance	tolerance degree : +- 4.0
cm3/1000s. : 12.0	RATED SPEED
Ţ	rack travel mm : 11.50 Rated speed rpm : 1045
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance 1/min : +- 5 Check
1	speed 1/min : ← 10
GUIDE SLEEVE TRAVEL	rack travel mm : 4.00 Rated speed rpm : 1145
Rated speed rpm : 1000	Tolerance 1/min : + 15
guide sleeve + travel mm : 8.10 +	Check speed 1/min : +- 20
Tolerance mm : + 0.15	rack travel mm : 0.50
Rated speed rpm : 325	Tolerance mm : $\leftarrow$ 0.50
guide sleeve travel mm : 1.70	Rated speed rpm : 1250
Tolerance mm : + 0.20	
Rated speed rpm : 450 + guide sleeve +	LOW IDLE
travel mm : 3.10	204 1002
Tolerance mm : + 0.20	control lever
Rated speed rpm : 800 + guide sleeve +	position degree : 67.0 tolerance degree : +- 4.0
travel mm : 5.90 + Tolerance mm : + 0.20	Setting point w/out bumper spring
	-
Rated speed rpm : 1300 + guide sleeve +	Rated speed rpm : 100
travel mm : 11.50 + Tolerance mm : + 0.50 +	CRT mm min. :> 7.70
	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 300
Rated speed rpm : 1000	rack travel mm : 6.20 Tolerance mm : +- 0.20
Aneroid pressure + 700 +	rack travel mm : 2.00
Del. quantity + cm3/1000 strokes : 206.0 +	Rated speed rpm : 370
Tolerance	
cm3/1000 strokes : + 1.0 +	

# ANEROID/ALTITUDE COMPENSATOR TEST

# SETTING

Rated speed rpm	:	500
Pressure hPa	:	700
rack travel mm	:	12.55
Tolerance mm	: +	- 0.05

Rated speed rpm	:	500
Pressure hPa	·	-
rack travel mm	:	9.80
Tolerance mm	: +-	0.10

# **MEASUREMENT**

Rated	speed	rpm	:	500
-------	-------	-----	---	-----

Pressure hPa	:		230
rack travel mm	:		10.85
Tolerance mm	:	+-	0.15

Pressure hPa	:	280
rack travel mm	;	11.85
Tolerance mm	: +	- 0.05

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	700
Rated speed rpm	:	5 <b>00</b>
Del. quantity		
cm3/1000 strokes	:	218.0
Tolerance		
cm3/1000 strokes	: +	- 3.0
Check tolerance		

cm3/1000s. :  $\leftarrow$  6.0

Aneroid pressure			
hPa	:		-
Rated speed rpm	:		500
Del. quantity			
cm3/1000 strokes	:		132.0
Tolerance			
cm3/1000 strokes	:	+	1.0
Check tolerance			, 0
cm3/1000s.	:	+-	4.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm3/1000 strokes	:	200.0
Tolerance		
cm3/1000 strokes	: +	- 15.0
Check tolerance		
cm3/1000s.	: +	- 19.0

# LOW IDLE

Rated speed rpm	: 300
Rack travel in mm Tolerance mm	: 6.20 : +- 0.20
Del. quantity cm3/1000 strokes Tolerance	: 20.0
cm3/1000 strokes Check tolerance	: <b>←</b> 3.0
cm3/1000s. Spreed	: +- 6.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 08.07.97 Test oil : ISO 4113

Combination No. : 0 402 076 8028

Injection pump

Pump designation : PES6P120A1320/5RS337

: 3

EP type number : 0 412 026 794

Governor

Governer design. : RSV350...1050P8A643

Governer no. : 0 421 833 555

Cust. part No. : 1385930 - Version B

Customer-spec. information Customer : SCANIA

Motor : DSI1171A,-C1156A

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration

damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.45 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

, 00

1	
Rack travel in mm: 15.25	
Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 225.0	Rated speed rpm : 700 Aneroid pressure
Tolerance	hPa : 1500
cn3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 225.0 Tolerance
Check tolerance cm3/1000S. : + 7.0	cm3/1000 strokes : +- 1.0 Check tolerance
Spreed	cm3/1000s. : +- 7.0 Spreed
	Tolerance
Tolerance	cm3/1000 strokes : 8.0
cm3/1000 strokes : 8.0	Check tolerance
Check tolerance	cm3/1000s. : 12.0
cm3/1000s. : 12.0	
	CONTROL LEVER
Rated speed rpm : 350	control lever
+	position degree : 49.0
Rack travel in mm: 5.10	tolerance degree : +- 4.0
Tolerance mm : + 0.10	
Del. quantity +	control lever
cm3/1000 strokes : 18.0	position degree : 99.0
Tolerance	tolerance degree : +- 4.0
cm3/1000 strokes : + 3.0 + Check tolerance	RATED SPEED
cm3/1000S. : + 6.0	rack travel mm : 14.20
Spreed	Rated speed rpm : 945
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : 4.0	Check
Check tolerance	speed 1/min : +- 10
cm3/1000s. : 8.0	
†	rack travel mm : 4.00
(D) CONTINC OF THE COTTON DIME	Rated speed rpm : 1045 Tolerance 1/min : +- 15
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance 1/min : +- 15 Check
WITH GOVERNOR	speed 1/min : +- 20
1	
	rack travel mm : 0.85
GUIDE SLEEVE POSITION	Tolerance mm : + 0.55
†	Rated speed rpm : 1200
control lever	rack travel mm : 4.00
position degree : -3	Rated speed rpm : 1065
Rated speed rpm : 800	Tolerance 1/min : + 15
Auted Speed (pm. 1 350	Check
Rack travel in mm: 0.50	speed 1/min : +- 20
Tolerance mm : + 0.20	
†	
governor spring	
pre-tension tick setting x : 5.00	LOW IDLE
T	CAM TACE

control lever

position degree : 73.0 tolerance degree : + 4.0

control lever

position degree : 23.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350 rack travel mm : 4.60 Tolarance mm : + 0.10

Testing:

Rated speed rpm : 350 rack travel mm : 5.10 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 700 rack travel nm : 15.25 Tolerance mm : + 0.05

Rated speed rpm : 900 rack travel mm : 15.25 Tolerance mm : 4- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 15.25
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 13.10
Tolerance mm : + 0.20

**MEASUREMENT** 

Rated speed rpm : 500

Pressure hPa : 450 rack travel mm : 13.60 Tolerance mm : + 0.20

Pressure hPa : 660 rack travel mm : 14.65 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500 Rated speed rpm : 900 Del. quantity

cm3/1000 strokes : 216.0

Tolerance

cm3/1000 strokes : +- 4.0

Check tolerance

cm3/1000s. : -- 6.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity cm3/1000 strokes : 183.0

Tolerance

cm3/1000 strokes : +- 1.0 Check tolerance

cm3/1060s. : +- 5.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.10 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 18.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance cm3/1000s. : +- 6.0

Spreed Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. : 8.0

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition Test oil : 08.07.97 : ISO 4113

Combination No.

: 0 402 076 8020

Injection pump

Pump designation: PES6P12OA1320/5RS337

: 3

EP type number : 0 412 026 794

Governor

Governer design. : RSV350...1050P8A643

Governer no.

: 0 421 833 555

Cust. part No. : 1385930 - Version C

Customer-spec. information

Customer : SCANIA

Motor : DSI1171A, -C1156A

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration

damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.45

Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm: + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

**K28** 

	1
Rack travel in mm: 15.35 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 226.0	Rated speed rpm : 700 Aneroid pressure hPa : 1500
Tolerance cm3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 226.0
Check tolerance cm3/1000s. : + 7.0	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 7.0
Spreed	Spreed Tolerance
Tolerance cm3/1000 strokes : 8.0	cm3/1000 strokes : 8.0 Check tolerance cm3/1000S. : 12.0
Check tolerance cm3/1000S. : 12.0	<del> </del>
	CONTROL LEVER
Rated speed rpm : 350	control lever position degree : 54.0
Rack travel in mm : 5.10  Tolerance mm : +- 0.10  Del. quantity	tolerance degree : + 4.0 control lever
cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes : +- 3.0	position degree : 104.0 tolerance degree : + 4.0
Check tolerance cm3/1000s. : +- 6.0	RATED SPEED : 14.30
Spreed Tolerance cm3/1000 strokes : 4.0	+ Rated speed rpm : 1095 + Tolerance 1/min : +- 5 + Check
Check tolerance cm3/1000S. : 8.0	speed 1/min : +- 10 rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1195 Tolerance 1/min : + 15 Check
WITH GOVERNOR	speed 1/min : +- 20
GUIDE SLEEVE POSITION	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1350
control lever position degree : - 3 Rated speed rpm : 800	rack travel mm : 4.00 Rated speed rpm : 1225 Toleranse 1/min : + 15
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Check speed 1/min : +- 20
governor spring - pre-tension -	
click setting x : 5.75	LOW IDLE

control lever position degree tolerance degree	: 73.0 : ← 4.0
control lever position degree tolerance degree	: 23.0 : +- 4.0
Setting point w/d	out bumper spring
Rated speed rpm rack travel mm Tolerance mm	: 350 : 4.60 : ← 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.10 : ← 0.10
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 700 : 15.35 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 1050 : 15.35 : +- 0.10
ANERGID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 15.35 : +- 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 13.10 : + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 450 : 13.60 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 660 : 14.65 : ← 0.05

FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	: 1500 : 1050
Rated speed rpm Del. quantity cm3/1000 strokes	
Tolerance cm3/1000 strokes	
Check tolerance cm3/1000s.	: +- 6.0
•	
Aneroid pressure hPa	: - : 500
Rated speed rpm Del. quantity cm3/1000 strokes	
Tolerance cm3/1000 strokes	
Check tolerance cm3/1000s.	: +- 5.0
LOW IDLE	
Rated speed rpm	: 350
Rack travel in mm Tolerance mm Del. quantity	: 5.10 : + 0.10
cm3/1000 strokes Tolerance	: 18.0
cm3/1000 strokes Check tolerance	: <b>←</b> 3.0
cm3/1000s. Spreed	: <del>←</del> 6.0
	: 4.0
Check tolerance cm3/1000s.	: 8.0
End of test specif	fication sheet
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Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.07.97 Test oil : ISO 4113

Combination No. : 0 402 076 8020

Injection pump

Pump designation : PES6P120A1320/5RS337

: 3

EP type number : 0 412 026 794

Governor

Governer design. : RSV350...1050P8A643

Governer no. : 0 421 833 555

Cust. part No. : 1385930 - Version D

Customer—spec. information Customer : SCANIA

Motor : DSI1171A, -C1156A

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5 Tolerance bar : ← 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.45 Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NV : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

. . . .

	45.45	
Rack travel in mm		
Tolerance mm	: ← 0.05 +	FULL LOAD DELIVERY AT FULL LOAD STOP
	+	
Del. quantity	+	Rated speed rpm : 700
cm3/1000 strokes	: 221.0	Aneroid pressure
	<u> </u>	hPa : 1500
Tolerance		Del. quantity
cm3/1000 strokes	: ← 1.0 <b>+</b>	cm3/1000 strokes : 221.0
	1	Tolerance
Check tolerance		cm3/1000 strokes : +- 1.0
cm3/1000s.	: ← 7.0 <b>+</b>	Check tolerance
(115) 10005.	1.0	cm3/1000s. : +- 7.0
0		
Spreed	<u>†</u>	Spreed
	†	Tolerance
Tolerance	+	cm3/1000 strokes : 8.0
cm3/1000 strokes	: 8.0 +	Check tolerance
		cm3/1000s. : 12.0
Check tolerance	+	
cm3/1000s.	: 12.0	
· · · · · · · · · · · · · · · · · · ·	<del>1</del>	
		CONTROL LEVER
	1	
Rated speed rpm	. 350	control lever
hated speed (pill	. 330	position degree : 54.0
Dook doored to an	. 5 10	tolerance degree : +- 4.0
Rack travel in mm	1	toterance degree . +- 4.0
Tolerance mm	: +- 0.10 +	
Del. quantity	†	control lever
cm3/1000 strokes	: 18.0 +	position degree : 104.0
Tolerance	+	tolerance degree : +- 4.0
cm3/1000 strokes	: <del>+</del> 3.0 +	
Check tolerance	+	RATED SPEED
cm3/1000S.	: +- 6.0	rack travel mm : 13.10
Spreed	<del> </del>	Rated speed rpm : 1095
Tolerance	1	Tolerance 1/min : + 5
cm3/1000 strokes	: 4.0	Check
Check tolerance	. 4.0	speed 1/min : +- 10
	: 8.0	speed (/iii/ii
cm3/1000s.	: 0.0	
	†	rack travel mm : 4.00 Rated speed rpm : 1185
	·	
(B) SETTING OF IN	JECTION PUMP +	Tolerance 1/min : +- 15
WITH GOVERNOR	+	Check
	+	speed 1/min : +- 20
	+	
		rack travel mm : 0.85
GUIDE SLEEVE POSIT	TION +	Tolerance mm : + 0.55
	+	Rated speed rpm : 1350
	1	,
control lever	1	rack travel mm : 4.00
position degree	3	Rated speed rpm : 1205
		Tolerance 1/min : +- 15
Rated speed rpm	. ••••	Check
Bard, Arra at 1	. 0.50	
Rack travel in min		speed 1/min : +- 20
Tolerance mm	: + u.2u †	
	+	
governor spring	+	
pre-tension	+	
click setting x	: 6.00 +	LOW IDLE
	1	
	1	
	•	

control lever position degree tolerance degree	: 73.0 : +- 4.0
control lever position degree tolerance degree	: 23.0 : +- 4.0
Setting point w/o	out bumper spring
Rated speed rpm rack travel mm Tolerance mm	: 350 : 4.60 : +- 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.10 : ← 0.10
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 700 : 15.15 : +- 0.05
Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 925 : 14.60 : ← 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 15.15 : ← 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 12.10 : + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 510 : 13.10 : ← 0.20

Pressure hPa : 780 rack travel mm : 14.50 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1500 hPa Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 189.0 Tolerance cm3/1000 strokes :  $\leftarrow$  4.0 Check tolerance cm3/1000S. : +- 6.0 Aneroid pressure hPa Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : +- 1.0Check tolerance cm3/1000s. : +- 4.0 LOW IDLE Rated speed rpm : 350 Rack travel in mm: 5.10 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 4.0 Check tolerance

End of test specification sheet

8.0

cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 26,10,95 Edition Test oil : ISO 4113

Combination No. : 0 402 610 802

Injection pump

Pump designation : PE12P120A500LS7866

EP type number : 0 412 620 836

Governor

Governer design. : Governer no.

Cust. part No. : 0240742902

Customer-spec. information

: MTU Customer : 12V183-02 Motor

TEST BENCH REQUIREMENTS

Inlet line : 3.1,3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity

min. L/h 110 Tolerance l/h:  $\leftarrow$  10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar

Test Lines : 1 680 750 075 Outside diameter : 8.0

3.0 x inside diameter :

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 4.45 : +- 0.05

Tolerance mm Check

: +- 0.10 tolerance mm

Rack travel in mm: 20.50 Tolerance mm : + 0.50

Firing order : 12- 1- 5- 9- 8

: - 3- 4- 11- 10

: - 2- 6- 7

Phasing : 0-45-60-105-120

: -165-180-225-240

: -285-300-345

Tolerance : +- 0.50

Check

tolerance  $^{\bullet}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 10.45

Tolerance mm  $: \leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 184.0

Tolerance cm3/1000 strokes	: <del></del> 1.0
Check tolerance cm3/1000s.	: +- 4.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 11.0
Del. quantity cm3/1000 strokes Tolerance	: 18.0
cm3/1000 strokes	: <b>←</b> 3.0
Check tolerance cm3/1000S. Spreed	: + 6.1
Tolerance	. 40.0
cm3/1000 strokes Check tolerance	: 10.0
cm3/1000s.	: 14.0
(B) SETTING OF IN WITH GOVERNOR	
(B) SETTING OF IN WITH GOVERNOR	JECTION PUMP
(B) SETTING OF IN WITH GOVERNOR  FULL LOAD DELIVER Aneroid pressure hPa	JECTION PUMP
(B) SETTING OF IN WITH GOVERNOR  FULL LOAD DELIVER  Aneroid pressure hPa Del. quantity cm3/1000 strokes	RY AT FULL LOAD STOP
(B) SETTING OF IN WITH GOVERNOR  FULL LOAD DELIVER  Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance	RY AT FULL LOAD STOP  : - : 184.0
(B) SETTING OF INWITH GOVERNOR  FULL LOAD DELIVER  Ameroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	AY AT FULL LOAD STOP  : - : 184.0 : + 1.0
(B) SETTING OF INWITH GOVERNOR  FULL LOAD DELIVER  Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	RY AT FULL LOAD STOP  : - : 184.0
(B) SETTING OF INWITH GOVERNOR  FULL LOAD DELIVER  Ameroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	RY AT FULL LOAD STOP  : - : 184.0 : + 1.0 : + 4.0
(B) SETTING OF INWITH GOVERNOR  FULL LOAD DELIVER  Ameroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	AY AT FULL LOAD STOP  : - : 184.0 : + 1.0
(B) SETTING OF INWITH GOVERNOR  FULL LOAD DELIVER  Ameroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	RY AT FULL LOAD STOP  : - : 184.0 : + 1.0 : + 4.0
(B) SETTING OF INWITH GOVERNOR  FULL LOAD DELIVER  Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance	## AT FULL LOAD STOP  : - : 184.0 : +- 1.0 : +- 4.0 : 8.0
(B) SETTING OF INWITH GOVERNOR  FULL LOAD DELIVER  Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	## AT FULL LOAD STOP  : - : 184.0 : +- 1.0 : +- 4.0 : 8.0

LOW IDLE			
Del. quantity			
cm3/1000 strokes	:	18.0	
Tolerance		7.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000s.	: +-	6.1	
Tolerance			
744000	:	10.0	
Check tolerance			
cm3/1000s.	:	14.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15.07.97 : ISO 4113 Test oil

Combination No. : 0 402 618 806

Injection pump

Pump designation : PE8P120A500/5RS7377

EP type number : 0 412 628 904

Governor

Governer design. : Governer no.

Cust. part No. : 1 2277 429

Customer-spec. information

Customer : MWM

: TBD 616-V16 Motor

: 864.0 Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 bar Tolerance bar

Test Lines : 1 680 750 075

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

26.0 Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 4.60 : +- 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 13.00 Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-2-7-8-3-4-

: 5- 6

Phasing : 0-30-45-75-90-120

: -315-345 : +- 0.50

Check

Tolerance

tolerance \*NW : +- 0.75

Start of delivery mark

: + 0.50Toleranse

Check

tolerance "NW :  $\leftarrow$  0.75

: 1 Barrel no.

BASIC SETTING

750 Rated speed rpm :

Rack travel in mm : 12.35

: **←** 0.05 Tolerance mm

Del. quantity cm3/1000 strokes : 285.0

Outside diameter : 8.0

Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000s.	: + 4.0
Spreed	<u> </u>
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm Del. quantity	: 325
cm3/1000 strokes Tolerance	: 30.0
cm3/1000 strokes Check tolerance	: <del>←</del> 3.0
cm3/1000s. Spreed	: ← 6.0
Tolerance	: 6.0
Check tolerance cm3/1000s.	: 10.0
(B) SETTING OF IN WITH GOVERNOR	NJECTION PUMP  RY AT FULL LOAD STOP
	700
Rated speed rpm Aneroid pressure hPa	
Del. quantity cm3/1000 strokes	: - : 285.0
Tolerance cm3/1000 strokes	: <del>-</del> 1.0
Check tolerance cm3/1000s.	: <del>+</del> 4.0
Spreed Tolerance	. 7 . 4.0
cm3/1000 strokes Check tolerance	: 6.0
cm3/1000s.	: 9.0
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 750 : 12.35 : + 0.05

:	325	
•	30 O	
•	30.0	
: +	- 3.0	
: +	- 6.0	
•	6.0	
•		
:	10.0	
	: + : +	: 30.0 : + 3.0 : + 6.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 15.07.97 Test oil : ISO 4113

Combination No. : 0 402 618 807

Injection pump

Pump designation : PE8P120A500/5RS7378

EP type number : 0 412 628 905

Sovernor

Governer design. : Governer no.

Cust. part No. : 1 2277 428

Customer-spec. information

Customer : MWM

Motor

: TBD 616-V16

Power KW

: 864.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

bar

: 208.5

Tolerance bar

: **←** 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 13.00

Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-2-5-6-3-4

: - 7- 8

Phasing

: 0-30-45-75-270-300

: -315-345

Tolerance

: +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance

tolerance °NW

: +- 0.50

Check

: +- 0.75

Barrel no.

: 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 285.0

L10

Tolerance cm3/1000 strokes	: <b>←</b> 1.0
Check tolerance cm3/1000s.	; + 4.0
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm	: 325
Del. quantity cm3/1000 strokes	: 30.0
Tolerance cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000s.	: +- 6.0
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000s.	: 10.0
(B) SETTING OF IN WITH GOVERNOR	NECTION PUMP
FULL LOAD DELIVER	Y AT FULL LOAD STOP
Rated speed rpm Aneroid pressure	: 750
hPa Del. quantity	: -
cm3/1000 strokes Tolerance	: 285.0
cm3/1000 strokes Check tolerance	: + 1.0
cm3/1000s. Spreed	: <del>←</del> 4.0
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 9.0
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 750 : 12.35 : + 0.05

LOW IDLE			
Rated speed rpm Del. quantity	:	325	
cm3/1000 strokes	:	30.0	
cm3/1000 strokes	: +-	3.0	
Check tolerance cm3/1000s. Spreed	: +-	6.0	
Tolerance cm3/1000 strokes Check tolerance	:	6.0	
cm3/1000s.	:	10.0	

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

: 24.04.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 640 830

Injection pump

Pump designation: PE12P120A520LS7824

: -2

EP type number : 0 412 620 828

Governor

Governer design. : RQV300...1150PA902

: -4

Governer no. : 0 421 813 870

Cust. part No. : 3-7153

Customer-spec. information

Customer : MAN : D2842LYE Motor

Power KW : 735.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40

Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity

: 120 min. L/h min. l/h : 120 Tolerance l/h : +- 20.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 bar

: + 1.5 Tolerance bar

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

4.55 Prestroke mm

Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 : +- 1.50 Tolerance mm

: 12-1A- 5- 9A- 8 Firing order

: -3A - 4 - 11A - 10

: -2A - 6

Phasing : 0-45-60-105-120

: -165-180-225-240

: -285-300-345

Tolerance : **←** 0.30

Check

: +- 0.75 tolerance \*NW

Start of delivery mark

Tolerance : **←** 0.10

Check

tolerance "NW : +- 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1150

	1	guide sleeve	
Rack travel in mm :	13.75	travel mm	• 13.50
Tolerance mm : +		Tolerance mm	
	+		
Del. quantity	+	<del></del>	
cm3/1000 strokes :	305.0	GUIDE SLEEVE POSIT	TION
	+		
Tolerance	<u> </u>		
cm $3/1000$ strokes : $+$	- 1.0 +	control lever	<b>A</b>
Charle dellarence		position degree	
Check tolerance	- 4.0	Rated speed rpm	: 1200
cm3/1000s. : +-	7 4.0	Rack travel in mm	. 12.70
Spreed	I	Tolerance mm	
Spr eed	I	local di lea min	
Tolerance	1		
cm3/1000 strokes :	5.0	FULL LOAD DELIVERY	AT FULL LOAD STOP
	<del></del>		
Check tolerance		Rated speed rpm	: 1150
cm3/1000s. :	9.0	Aneroid pressure	
	<u> </u>	hPa	: 1300
	†	Del. quantity	705.0
	+	cm3/1000 strokes	: 305.0
Rated speed rpm :	300 +	Tolerance	. 10
	7 70	cm3/1000 strokes	: +- 1.0
Rack travel in mm:	7.30	Check tolerance cm3/1000s.	
Tolerance mm : +- Del. quantity	7	Spreed	: +- 4.0
cm3/1000 strokes :	san I	Tolerance	
Tolerance	30.0	cm3/1000 strokes	• 5.0
cm3/1000 strokes : +	- 4.0	Check tolerance	
	1	cm3/1000s.	: 9.0
	+		
(B) SETTING OF INJECTI	ON PUMP +		
WITH GOVERNOR	+		
	†	CONTROL LEVER	
CHINE SLEENE TRAVEL		control lever	
GUIDE SLEEVE TRAVEL	I	position degree	• 122 0
Rated speed rpm :	1150	tolerance degree	: +- 4.0
guide sleeve	1	1000 400	
travel mm :	9.60	RATED SPEED	
	0.10	rack travel mm	: 12.70
	+	Rated speed rpm	: 1195
Rated speed rpm :	300 +	Tolerance 1/min	: +- 5
guide sleeve	t		. ==
	1.40 +	rack travel mm	: 4.00
Tolerance mm : +-	0.20	Rated speed rpm	: 1305
Data di amandi ma	750	Tolerance 1/min	: +- 15
Rated speed rpm :	750 +	rack travel mm	: 0.50
guide sleeve travel mm :	5.80	Tolerance mm	: +~ 0.50
	0.20	Rated speed rpm	: 1400
TOLET drice that	1	Matta Speca i piii	. 1400
Rated speed rpm :	450		
guide sleeve	1		
travel mm :	3.20		
	0.30	LOW IDLE	
	+		
Rated speed rpm :	1400 +		

control lever position degree tolerance degree	: 85.0 : ← 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 100
CRT mm min.	: > 8.90
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 7.30 : + 0.10
rack travel mm Rated speed rpm Tolerance 1/min	
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1150 : 13.75 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 500 : 6.90 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 500 : 8.50 : ← 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1300 : 13.75 : +- 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 9.20 : ← 0.10
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 470 : 12.10 : + 0.20

Pressure hPa rack travel mm Tolerance mm	: 100 : 9.45 : ← 0.05	
Start interlock		
Rated speed rpm Rated speed rpm	: > 100 : < 220	
Check speed 1/min Check	: > 80	
speed 1/min	: < 240	
FUEL DELIVERY CHARACTERISTICS  Delivery for shutoff assemblies (refer to cam sequence).  Arbitrary delivery for standard plunger		
hPa Rated speed rpm	: - : 500	
Del. quantity cm3/1000 strokes	: 0.1	
Delivery for shu (refer to cam se	toff assemblies quence). ry for standard plung	jer
Delivery for shu (refer to cam se Arbitrary delive barrel assemblie Aneroid pressure hPa	toff assemblies quence). ry for standard plungs.	jer
cm3/1000 strokes  Delivery for shu (refer to cam se Arbitrary delive barrel assemblie  Aneroid pressure hPa Rated speed rpm Del. quantity	toff assemblies quence). ry for standard plungs. : - : 500	er
cm3/1000 strokes  Delivery for shu (refer to cam se Arbitrary delive barrel assemblie  Aneroid pressure hPa Rated speed rpm	toff assemblies quence). ry for standard plung s.  : - : 500 : 135.0	jer
cm3/1000 strokes  Delivery for shu (refer to cam se Arbitrary delive barrel assemblie  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes  Aneroid pressure hPa	toff assemblies quence). ry for standard plung s.  : - : 500 : 135.0 : + 10.0	jer
cm3/1000 strokes  Delivery for shu (refer to cam se Arbitrary delive barrel assemblie  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes  Aneroid pressure hPa Rated speed rpm Del. quantity	toff assemblies quence). ry for standard plung s.  : - : 500 : 135.0 : +- 10.0	jer
cm3/1000 strokes  Delivery for shu (refer to cam se Arbitrary delive barrel assemblie  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance chPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	toff assemblies quence). ry for standard plung s.  : - : 500 : 135.0 : + 10.0 : 500 : 150.0	jer
cm3/1000 strokes  Delivery for shu (refer to cam se Arbitrary delive barrel assemblie  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	toff assemblies quence). ry for standard plung s.  : - : 500 : 135.0 : +- 10.0	jer
Delivery for shu (refer to cam se Arbitrary delivery barrel assemblie Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	toff assemblies quence). ry for standard plungs.  : - : 500 : 135.0 : + 10.0  : 500 : 150.0 : + 1.0	jer

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 19.30 Tolerance mm : + 1.70

Del. quantity

cm3/1000 strokes : 110.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

# LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 7.30 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 56.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  4.0

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.07.97 Test oil : ISO 4113

Combination No. : 0 402 648 603A

Injection pump

Pump designation : PE8P120A720LS7427T EP type number : 0 412 628 919

Governor

Governer design. : RQ750PA1227-1 Governer no. : 0 421 801 812

Cust. part No. : 1391886 - Version A

Customer—spec. information Customer : SCANIA

Motor : DSI(C)14...A,M

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Vibration damper

(RoBo diaphragm) : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5 Tolerance bar : +- 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm: + 1.50

Firing order : 1-2A- 7- 3A- 4

: - 5A- 6

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 15.05

Tolerance mm : ← 0.05

	l guido al covo
No. 1 mandada.	+ guide steeve + travel mm : 11.50
Del. quantity cm3/1000 strokes : 271.0	Tolerance mm : + 0.50
CMS/1000 Strokes : 271.0	T rocerance man . += 6.50
Tolerance	
cm3/1000 strokes : +- 1.0	FULL LOAD DELIVERY AT FULL LOAD STOP
cms/1000 strokes : 1.0	T FOLL LOAD DECIVERY AT FOLL LOAD STOP
Charle to Language	T Rated speed rpm : 850
Check tolerance : +- 8.0	The same of the sa
cm3/1000s. : +- 8.0	+ Aneroid pressure + hPa : 1500
Connect designation of the second sec	
Spreed	+ Del. quantity + cm3/1000 strokes : 271.0
Talauanaa	+ Tolerance
Tolerance : 8.0	+ cm3/1000 strokes : +- 1.0
CMS/ YOUU STROKES : 0.0	+ Check tolerance
Check tolerance	+ cm3/1000s. : +- 8.0
44.4	+ Spreed
cm3/1000s. : 12.0	+ Tolerance
40 404 A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	+ cm3/1000 strokes : 8.0
•	+ Check tolerance
•	+ cm3/1000s. : 12.0
Rack travel in mm : 6.50	Ι
Tolerance mm : +- 0.10	
Del. quantity	
cm3/1000 strokes : 38.0	CONTROL LEVER
Tolerance	I COMMOR ELVER
cm3/1000 strokes : +- 4.0	control lever
Check tolerance	position degree : 30.0
cm3/1000s. : +- 6.0	tolerance degree : +- 4.0
Spreed	totel divice degree
Tolerance -	control lever
cm3/1000 strokes : 5.0	position degree : 92.0
Check tolerance	tolerance degree : + 4.0
cm3/1000s. : 9.0	- total and aug.
	1
	ASSEMBLY GOVERNOR SETTING
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	Rated speed rpm : 900
•	rack travel mm : 15.50
GUIDE SLEEVE TRAVEL	Rated speed rpm : 940
•	Tolerance 1/min : +- 4
Rated speed rpm : 759	rack travel mm : 4.00
guide sleeve	+
travel mm : 4.89 -	rack travel mm : 0.50
Tolerance mm : + 0.15	Tolerance mm : + 0.50
•	Rated speed rpm : 1000
Rated speed rpm : 480 -	+
Tolerance mm : + 0.25	+
•	Rated speed rpm : 901
Rated speed rpm : 840 -	rack travel mm : 15.50
Tolerance mm : + 0.25	<del>†</del>
	Rated speed rpm : 941
Rated speed rpm : 797	Tolerance 1/min : +- 4
guide sleeve -	rack travel mm : 4.00
travel mm : 10.00 -	t
Tolerance mm : + 0.25	rack travel mm : 0.50
·	Tolerance mm : + 0.50
Rated speed rpm : 850	Rated speed rpm : 1000
•	<del> </del>

		+ SETTING
Rated speed rpm	: 902	+
rack travel mm	: 15.50	+ Rated speed rpm : 500
		Pressure hPa : 1500
Rated speed rpm	: 942	rack travel mm : 15.05
Tolerance 1/min	: + 4	Tolerance mm : + 0.05
rack travel mm	: 4.00	Dated and an 500
mate description	: 0.50	+ Rated speed rpm : 500 + Pressure hPa : -
rack travel mm Tolerance mm		rack travel mm : 12.50
Rated speed rpm	: 1000	Tolerance mm : + 0.20
nacca speca i pii	. 1000	Toget artee min
		+ MEASUREMENT
Rated speed rpm		+
rack travel mm	: 15.50	+ Rated speed rpm : 500
	2.17	+
Rated speed rpm	: 943	+ Pressure hPa : 350 + rack travel mm : 13.20
Tolerance 1/min rack travel mm	: +- 4 : 4.00	
rack travel mm	: 4.00	+ Tolerance mm : + 0.20
rack travel mm	: 0.50	Pressure hPa : 590
Tolerance mm		rack travel mm : 14.55
Rated speed rpm		+ Tolerance mm : + 0.05
, ,		+
		+
Rated speed rpm		
rack travel mm	: 15.50	FUEL DELIVERY CHARACTERISTICS
Rated speed rpm	: 944	<u> </u>
Tolerance 1/min		Aneroid pressure
rack travel mm		+ hPa : -
		+ Rated speed rpm : 500
rack travel mm	: 0.50	+ Del. quantity
Tolerance mm	: <del>+-</del> 0.50	+ cm3/1000 strokes : 221.0
Rated speed rpm	: 1000	+ Tolerance
		+ cm3/1000 strokes : + 1.0
<b>.</b>		+ Check tolerance + cm3/1000s. : + 7.0
Rated speed rpm		+ cm3/1000s. : $+$ 7.0
rack travel mm	: 13.30	I
Rated speed rpm	: 945	
Tolerance 1/min		+ STARTING FUEL DELIVERY
rack travel mm	: 4.00	+
		Rated speed rpm : 100
rack travel mm	: 0.50	rack travel mm : 12.50
Tolerance mm	: + 0.50	Toterance mm : + 0.20
Rated speed rpm	: 1000	+ Del. quantity + cm3/1000 strokes : 180.0
		+ cm3/1000 strokes : 180.0 + Tolerance
		+ cm3/1000 strokes : +- 20.0
TORQUE CONTROL		Check tolerance
Rated speed rpm	: 850	- cm3/1000s. : +- 24.0
rack travel mm	: 15.05	+
Tolerance mm	: +- 0.05	+
		+
		†
ANEROID/ALTITUDE		†
COMPENSATOR TEST		Ī
		<del></del>

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 16.07.97 Test oil : ISO 4113

Combination No. : 0 402 648 785

Injection pump

Pump designation: PE8P120A320LS7844 EP type number : 0 412 628 860

Governor

Governer design. : RQV350...1050PA1318

Governer no. : 0 421 814 185

Cust. part No. : 0270746302

Customer-spec. information

Customer : MB-NFZ : 0M442 LA Motor

Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : **←** 2.0

: 1 417 413 047 Overflow valve

Inlet press. bar : 2.0 Tolerance bar :  $\leftarrow$  0.1

Overflow quantity

min. L/h : 130 Tolerance l/h:  $\leftarrow$  20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

26.0 Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 5.05 : +- 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm :  $\leftarrow$  0.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance : + 0.10

Check

: + 0.75 tolerance \*NW

: 8 Barrel no.

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 15.30 Tolerance mn:  $\leftarrow 0.05$ 

	+ guide sleeve
Del. quantity	+ travel mm : 3.62
cm3/1000 strakes : 272.0	+ Tolerance mm : + 0.25
	+
Tolerance	+ Rated speed rpm : 1204
cm3/1000 strokes : $+-$ 1.0	† guide sleeve
**************************************	† travel mm : 10.00
Check tolerance	+ Tolerance mm : + 0.25
cm3/1000s. : $\leftarrow$ 4.0	+
	+ Rated speed rpm : 1300
Spreed	+ guide sleeve
	+ travel mm : 11.50
Tolerance	† Tolerance mm : + 0.50
cm3/1000 strokes : 5.0	†
Check tolerance	+ GUIDE SLEEVE POSITION
cm3/1000s. : 9.0	†
	† · · · · · · · · · · · · · · · · · · ·
	t control lever
750	+ position degree : - 1
Rated speed rpm : 350	Rated speed rpm : 1174
Rack travel in mm : 5.00	+ Rack travel in mm : 11.00
	+ Tolerance mm : + 7.30
	+ roterance mm : +- 1.50
Del. quantity cm3/1000 strokes : 19.0	T
Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : +- 3.0	T FOLL LOAD DELIVERY AT FOLE LOAD STOP
Check tolerance	Rated speed rpm : 1050
cm3/1000s. : + 6.0	Aneroid pressure
Spreed	hPa : 1800
Tolerance	Del. quantity
cm3/1000 strokes : 6.0	+ cm3/1000 strokes : 272.0
Check tolerance	+ Tolerance
cm3/1000s. : 10.0	+ cm3/1000 strokes : + 1.0
	+ Check tolerance
	+ cm3/1000s. : + 4.0
(B) SETTING OF INJECTION PUMP	+ Spreed
WITH GOVERNOR	+ Tolerance
	+ cm3/1000 strokes : 5.0
	+ Check tolerance
GUIDE SLEEVE TRAVEL	+ cm3/1000s. : 9.0
	+
Rated speed rpm : 1106	+
guide sleeve	+
travel mm : 8.02	+ CONTROL LEVER
Tolerance mm : +- 0.15	†
	+ control lever
Rated speed rpm : 350	+ position degree : 120.0
guide sleeve	tolerance degree : +- 4.0
travel mm : 1.48	T DATES ODERS
Tolerance mm : + 0.20	RATED SPEED
0.4.4	rack travel mm : 14.30
Rated speed rpm : 900	Rated speed rpm : 1095
guide sleeve	+ Tolerance 1/min : + 5
travel mm : 5.69	T mack through the
Tolerance mm : + 0.25	rack travel mm : 4.00
Dated around the EGO	Rated speed rpm : 1190
Rated speed rpm : 580	Tolerance 1/min : + 15

rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1300
LOW IDLE	
control lever position degree tolerance degree	: 64.0 : +- 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 250
CRT mm min.	: > 7.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.00 : ← 0.10
Rated speed rpm	: 450
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm	: 15.30 : + 0.05 : 800_
ANEROID/ALTITUDE COMPENSATOR TEST	: +- 0.10
SETTING	
Rated speed rpm Pressure hPa	: 500
MEASUREMENT	
Pressure hPa rack travel mm Tolerance mm	: 700 : 4.60 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 180 : 0.20 : ← 0.05

Rated speed rpm Rated speed rpm	: > 100 : < 270
Check speed 1/min Check	: > 80
speed 1/min	: < 290
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	: 1800
Rated speed rpm Del. quantity	
cm3/1000 strokes Tolerance	: 274.0
cm3/1000 strokes Check tolerance	: <b>←</b> 3.0
cm3/1000s.	: +- 6.0
Aneroid pressure	<del></del>
hPa Rated speed rpm	: – : 500
Del. quantity cm3/1000 strokes	: 130.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000s.	: +- 4.0
REDUCED QUANTITY	
Aneroid pressure hPa	: 1800
Rated speed rpm Del. quantity	: 1050
cm3/1000 strokes Tolerance	: 206.0
cm3/1000 strokes Check tolerance	: <b>←</b> 1.5
cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
Del. quantity cm3/1000 strokes	: 270.0
Tolerance cm3/1000 strokes Check tolerance	: <del>+</del> 10.0
cm3/1000s.	: + 14.0

Start interlock

# LOW IDLE

Rated speed rpm	:		350
Rack travel in mm Tolerance mm Del. quantity	: -	<b>-</b> -	5.00 0.10
cm3/1000 strokes Tolerance	:		19.0
cm3/1000 strokes Check tolerance	: +	-	3.0
cm3/1000s. Spreed	: +	-	6.0
Tolerance cm3/1000 strokes Check tolerance	:		6.0
cm3/1000s.	:		10.0

### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.07.97 Test oil : ISO 4113

Combination No. : 0 402 648 920

Injection pump

Pump designation : PE8P120A320LS7844 EP type number : 0 412 628 260

Governor

Governer design. : RQV350...1050PA870

: -16

Governer no. : 0 421 813 953

Cust. part No. :

Customer—spec. information Customer : MB-NFZ Motor : OM442 LA Power KW : 370.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 110 Tolerance L/h : + 10.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 8-7-2-6

Firing order : 8-7-2-6-3 :-5-4-1

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 8

### CRT ZERO POSITION

Rack travel in mm : 14.30 Tolerance mm : + 0.10

#### BASIC SETTING

Rated speed rpm : 600

	+	Tolerance mm : + 0.25
Rack travel in mm Tolerance mm	: 14.30 : ← 0.10	Rated speed rpm : 900 guide sleeve
Del. quantity cm3/1000 strokes	: 258.0	travel mm : 5.65 Tolerance mm : +- 0.25
Tolerance cm3/1000 strokes	· + 1.0	Rated speed rpm : 1204 guide sleeve travel mm : 10.05
Check tolerance cm3/1000s.	: + 4.0	Tolerance mm : ← 0.25
Spreed	+	GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes	: 5.0	control lever position degree : - 1 Rated speed rpm : 1125
Check tolerance cm3/1000s.	9.0	Rack travel in mm: 17.25 Tolerance mm: + 0.75
Rated speed rpm :	: 350	FULL LOAD DELIVERY AT FULL LOAD STOP
	: 5.00 : ← 0.10	Rated speed rpm : 600 Aneroid pressure hPa : 1100
Del. quantity cm3/1000 strokes Tolerance	+	Del. quantity cm3/1000 strokes : 258.0
Check tolerance	: + 3.0 : + 6.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Spreed Tolerance	: 6.0	cm3/1000S. : +- 4.0 Spreed Tolerance
Check tolerance	: 10.0	cm3/1000 strokes : 5.0 Check tolerance
(B) SETTING OF INJE	ECTION PUMP	cm3/1000s. : 9.0
WITH GOVERNOR		CONTROL LEVER
GUIDE SLEEVE TRAVEL	+	control lever position degree : 119.0
Rated speed rpm : guide sleeve travel mm :	: 1108 : 8.05	tolerance degree : +- 4.0  RATED SPEED
Tolerance mm :	+ 0.25	rack travel mm : 14.30 Rated speed rpm : 1095
Rated speed rpm : guide sleeve travel mm :	1.55	Tolerance 1/min : +- 5 rack travel mm : 4.00
Tolerance mm :	+ 0.25 570	Rated speed rpm : 1195 Tolerance 1/min : +- 15
Rated speed rpm : guide sleeve travel mm :	+	rack travel mm : 0.50 Tolerance mm : + 0.50

Rated speed rpm	: 1300	Pressure hPa : 1300 rack travel mm : 0.45 Tolerance mm : + 0.05
LOW IDLE		Start interlock
control lever position degree tolerance degree		Rated speed rpm : > 100 Rated speed rpm : < 270 Check
Setting point w/o	out bumper spring	speed 1/min : > 80 Check
Rated speed rpm	: 250	speed 1/min : < 290
CRT mm min. Testing:	: > 6.60	FUEL DELIVERY CHARACTERISTICS
Rated speed rpm rack travel mm Tolerance mm	: 5.00 : +- 0.10	Aneroid pressure  hPa : 1800  Rated speed rpm : 1050  Del. quantity  cm3/1000 strokes : 272.0  Tolerance
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm		cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 4.5
Rated speed rpm rack travel mm Tolerance mm	: 15.30 : + 0.10 : 800	Aneroid pressure hPa : 1800 Rated speed rpm : 800 Del. quantity cm3/1000 strokes : 274.0 Tolerance
rack travel mm Tolerance mm	: 15.30 : +- 0.10	+ cm3/1000 strokes : +- 2.0 + Check tolerance + cm3/1000S. : +- 5.0
ANEROID/ALTITUDE COMPENSATOR TEST		Aneroid pressure hPa : - Rated speed rpm : 500
2-stage LDA setti	ing	+ Del. quantity + cm3/1000 strokes : 140.0 + Tolerance
Rated speed rpm Pressure hPa	: 600 : 1100	cm3/1000 strokes : +- 1.0 Check tolerance
MEASUREMENT		+ cm3/1000s. : +- 4.0
Pressure hPa rack travel mm Tolerance mm	: 290 : -5.50 : + 0.05	REDUCED QUANTITY  Aneroid pressure
Pressure hPa rack travel mm Tolerance mm	: 780 : −1.30 : ← 0.10	hPa : 1800 Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 206.0

Tolerance cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 4.0

# STARTING FUEL DELIVERY

100 Rated speed rpm : Del. quantity

cm3/1000 strokes : 270.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s.: **←** 14.0

# LOW IDLE

350 Rated speed rpm :

Rack travel in mm : 5.00 Tolerance mm : **←** 0.10 Del. quantity cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : +- 3.0Check tolerance

cm3/1000s. : +- 6.0

Spreed

Tolerance

6.0 cm3/1000 strokes :

Check tolerance

10.0 cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 24.04.97 : ISO 4113

Combination No. : 0 402 649 816

Injection pump

Pump designation: PE10P120A520LS7853

EP type number : 0 412 629 810

Governor

Governer design. : RQV300...1150PA1039

: -2K

Governer no.

: 0 421 815 316

Cust. part No. : 3-7225

Customer-spec. information

Customer : MAN

Motor

: D 2840 LE401

Power KW

: 603.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

bar

: 208.5

Tolerance bar

: **←** 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : + 1.0

Prestroke mm : 4.55 Tolerance mm : + 0.05

Check

: + 0.10 tolerance mm

Rack travel in mm: 10.50

Tolerance mm : + 1.50

Firing order : 10-9A- 4- 1A- 8

: - 7A- 6- 3A- 5

: 0-45-72-117-144 Phasing

: -189-216-261-288

: -333

Tolerance : **←** 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance \*NW : **←** 0.75

Barrel no. : 10

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.35

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 295.0

L28

	• 1
<u> </u>	guide sleeve
Tolerance	travel mm : 4.21
cm3/1000 strokes : +- 1.0 +	Tolerance mm : +- 0.25
+	
Check tolerance +	Rated speed rpm : 1450
cm3/1000s. : $\leftarrow$ 4.0	guide sleeve
<del>}</del>	travel mm : 13.50
Spreed	Tolerance mm : + 0.50
1	
Tolerance	
cm3/1000 strokes : 5.0	GUIDE SLEEVE POSITION
1 3.5 Cilibritos Serokes . 3.5	GOIDE SEEFAE ( GOI) ION
Check tolerance	
cm3/1000s. : 9.0	andral lavan
CIID/ 10003.	control lever
	position degree : - 1
†	Rated speed rpm : 1280
Date d and all are 200	B. J. A. J.
Rated speed rpm : 300	Rack travel in mm : 12.50
+	Tolerance mm : + 1.30
Rack travel in mm: 6.80	
Tolerance mm : + 0.10	
Del. quantity	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : 45.0	
Tolerance	Rated speed rpm : 1150
cm3/1000 strokes : +- 5.0 +	Aneroid pressure
+	hPa : 1300
<u>↓</u>	Del. quantity
(B) SETTING OF INJECTION PUMP	cm3/1000 strokes : 295.0
WITH GOVERNOR	Tolerance
	cm3/1000 strokes : +- 1.0
	Check tolerance
GUIDE SLEEVE TRAVEL	cm3/1000s. : +- 4.0
GOIDE SLEEVE IRAVEL	
Dated aread are 121/	Spreed
Rated speed rpm : 1214	Tolerance cm3/1000 strokes : 5.0
guide sleeve +	cm3/1000 strokes : 5.0
travel mm : 10.52	Check tolerance
travel mm : 10.52 Tolerance mm : + 0.25	Check tolerance
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300	Check tolerance
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve	Check tolerance cm3/1000s. : 9.0
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24	Check tolerance
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve	Check tolerance cm3/1000s. : 9.0
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24	Check tolerance cm3/1000s. : 9.0
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER
travel mm : 10.52 Tolerance mm : ± 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : ± 0.25  Rated speed rpm : 799	Check tolerance cm3/1000S. : 9.0  CONTROL LEVER  control lever position degree : 121.0
travel mm : 10.52 Tolerance mm : ± 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : ± 0.25	Check tolerance cm3/1000S. : 9.0  CONTROL LEVER  control lever position degree : 121.0
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : 4.0
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90	Check tolerance cm3/1000S. : 9.0  CONTROL LEVER  control lever position degree : 121.0
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm: : 1203
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm: : 1203
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00
travel mm : 10.52 Tolerance mm : $\pm$ 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : $\pm$ 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : $\pm$ 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75 Tolerance mm : $\pm$ 0.25	Check tolerance cm3/1000S. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1325
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25  Rated speed rpm : 379  Rated speed rpm : 379	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25  Rated speed rpm : 379 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25	Check tolerance cm3/1000S. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1325 Tolerance 1/min : + 15
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25  Rated speed rpm : 379 guide sleeve travel mm : 379 guide sleeve travel mm : 379 guide sleeve travel mm : 3.53	Check tolerance cm3/1000S. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1325 Tolerance 1/min : + 15  rack travel mm : 0.50
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25  Rated speed rpm : 379 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1325 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25  Rated speed rpm : 379 guide sleeve travel mm : 379 guide sleeve travel mm : 379 guide sleeve travel mm : 3.53 Tolerance mm : + 0.25	Check tolerance cm3/1000S. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1325 Tolerance 1/min : + 15  rack travel mm : 0.50
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25  Rated speed rpm : 379 guide sleeve travel mm : 379 guide sleeve travel mm : 379 guide sleeve travel mm : 3.53	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1325 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50
travel mm : 10.52 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 2.24 Tolerance mm : + 0.25  Rated speed rpm : 799 guide sleeve travel mm : 6.90 Tolerance mm : + 0.25  Rated speed rpm : 329 guide sleeve travel mm : 2.75 Tolerance mm : + 0.25  Rated speed rpm : 379 guide sleeve travel mm : 379 guide sleeve travel mm : 379 guide sleeve travel mm : 3.53 Tolerance mm : + 0.25	Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 121.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1203 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1325 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50

#### LOW IDLE

control lever

position degree : 76.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 8.20

Testing:

Rated speed rpm : 300 rack travel mm : 6.80 Tolerance mm :  $\leftarrow 0.10$ 

Rated speed rpm : 345

TORQUE CONTROL

Rated speed rpm : 1150 rack travel mm : 13.35 Tolerance mm : + 0.05

Rated speed rpm : 700 rack travel mm : 12.00 Tolerance mm : +- 0.10

Rated speed rpm : 900 rack travel mm : 13.00 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 6.90 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 8.60 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

# SETTING

Rated speed rpm : 1150
Pressure hPa : 1300
rack travel mm : 13.35
Tolerance mm : +- 0.05

Rated speed rpm : 1150
Pressure hPa : rack travel mm : 9.60

Tolerance mm :  $\leftarrow$  0.10

**MEASUREMENT** 

Rated speed rpm : 1150

Pressure hPa : 850 rack travel mm : 12.15 Tolerance mm : + 0.15

Pressure hPa : 400 rack travel mm : 9.95 Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 240

Check

speed 1/min : > 80

Check

speed 1/min : < 260

### FUEL DELIVERY CHARACTERISTICS

Amenoid pressure

hPa : 1300 Rated speed rpm : 700

Del. quantity

cm3/1000 strokes : 250.0

Tolerance

cm3/1000 strokes : + 3.0 Check tolerance

cm3/1000s. : +- 6.0 Spreed

Tolerance

cm3/1000 strokes : 10.0

Check tolerance

cm3/1000s. : 14.0

Aneroid pressure

hPa : 1300 Rated speed rpm : 900

Del. quantity

cm3/1000 strokes : 280.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s. :  $\leftarrow$  6.0

Delivery for shutoff assemblies (refer to cam sequence).

(refer to cam sequence).
Arbitrary delivery for standard plunger

barrel assemblies.

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

: 0.1

cm3/1000 strokes : Tolerance

cm3/1000 strokes : +- 0.1

Delivery for shutoff assemblies (refer to cam sequence). Arbitrary delivery for standard plunger barrel assemblies.

Aneroid pressure

hPa :

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 135.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 170.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 19.70

Del. quantity

cm3/1000 strokes : 110.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

### LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 6.80 Tolerance mm : ← 0.10 Del. quantity

cm3/1000 strokes : 45.0

Tolerance

cm3/1000 strokes : + 5.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

: 10.07.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 676 832

Injection pump

Pump designation : PE6P120A320LS7898

EP type number : 0 412 626 957

Governor

Governer design. : RSV350...1G00P0A648

Governer no. : 0 421 833 565

Cust. part No. : 0270748202

Customer-spec. information Customer : MB-NFZ

: 0M441 A Motor Power Kit : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

Tolerance bar : + 0.1

Overflow quantity

min. l/h : 120 Tolerance l/h : + 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

tolerance mm : **←** 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 6-3-5-2-4-

: 0-60-120-180-240 Phasing

: -300

Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 980

1	_
Rack travel in mm: 11.90	
Tolerance mm : ← 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity	- Rated speed rpm : 980
cm3/1000 strokes : 175.0	- Aneroid pressure - hPa : 1000
Tolerance	Del. quantity
cm3/1000 strokes : + 1.0	- cm3/1000 strokes : 175.0
Check tolerance	Tolerance - cm3/1000 strokes : +- 1.0
cm3/1000s. : + 4.0	- Check tolerance
Spreed	- cm3/1000s. : +- 4.0 - Spreed
	- Tolerance
Tolerance - cm3/1000 strokes : 5.0	- cm3/1000 strokes : 5.0 - Check tolerance
Cilis/ todo strokes . 3.0	- cm3/1000s. : 9.0
Check tolerance	
cm3/1000s. : 9.0	
	CONTROL LEVER
Rated speed rpm : 350	- control lever
+	position degree : 93.0
Rack travel in mm: 5.00	tolerance degree : +- 4.0
Del. quantity	-
cm3/1000 strokes : 19.0	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : +- 3.0	Rated speed rpm : 1030
Check tolerance	rack travel mm : 10.90
cm3/1000s. : +- 6.0 Spreed	Rated speed rpm : 1080
Tolerance	- Tolerance 1/min : +- 4
cm3/1000 strokes : 6.0	- rack travel mm : 4.00
cm3/1000s. : 10.0	- rack travel mm : 0.85
+	Tolerance mm : +- 0.55
(B) SETTING OF INJECTION PUMP	- Rated speed rpm : 1300
WITH GOVERNOR	-
†	Rated speed rpm : 1031 rack travel mm : 10.90
	- rack travectors : (U.YU L
GUIDE SLEEVE POSITION	- Rated speed rpm : 1081
1	- Tolerance 1/min : +- 4 - rack travel mm : 4.00
control lever	L
position degree : - 3	rack travel mm : 0.85
Rated speed rpm : 800	- Tolerance mm : +- 0.55 - Rated speed rpm : 1300
Rack travel in mm : 0.50	The control of the co
Tolerance mm : + 0.20	Botod speed pro
governor spring	- Rated speed rpm : 1032 - rack travel mm : 10.90
pre-tension +	-
click setting $x$ : 4.50	- Rated speed rpm : 1082 - Tolerance 1/min : +- 4
Ţ	- rack travel mm : 4.00

rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1300
Rated speed rpm rack travel mm	: 1033 : 10.90
Rated speed rpm Tolerance 1/min rack travel mm	
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1300
Rated speed rpm rack travel mm	: 1034 : 10.90
Rated speed rpm Tolerance 1/min rack travel mm	: <del>←</del> 4
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1300
Rated speed rpm rack travel mm	: 1035 : 10.90
Rated speed rpm Tolerance 1/min rack travel mm	
rack travel mma Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1300
LOW IDLE	
control lever position degree tolerance degree	: 73.0 : +- 4.0
Setting point w/o	
Rated speed rpm	: 100
CRT mm min.	: > 19.50
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.00 : ← 0.10

rack travel mam	: 2.00
Rated speed rpm Tolerance 1/min	: 405 : +- 30
OFT THE MINTERS	W CDDING
SET IDLE AUXILIAR	RY SPRING
rack travel mm	: 2.00
TORQUE CONTROL	
Rated speed rpm	: 980
rack travel mm	: 11.90
Tolerance mm	: <del>+</del> 0.05
Rated speed rpm	: 600
rack travel mm	: 11.90
Tolerance mm	: +- 0.05
Rated speed rpm	
rack travel mm	: 11.20
Tolerance mm	: + 0.15
ANEROID/ALTITUDE	······································
COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 400
Pressure hPa	: 1000
rack travel mm	: 11.90
Tolerance mm	: +- 0.05
Rated speed rpm	: 400
Pressure hPa	: -
rack travel mm Tolerance mm	: 10.40 : +- 0.15
roterance min	. +- 0.15
MEASUREMENT	
Rated speed rpm	: 400
Pressure hPa	: 300
Tolerance mm	: + 0.15
Pressure hPa	: 350
rack travel mm	: 11.20
Tolerance mm	: +- 0.15
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa	: 1000
Rated speed rpm	: 600

Del. quantity	
cm3/1000 strokes	: 173.0
Tolerance	
cm3/1000 strokes	: <b>←</b> 3.0
Check tolerance	
cm3/1000S.	: +- 6.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000s.	: 12.0
Aneroid pressure	
hPa	: 350
Rated speed rpm	: 400
Del. quantity	
cm3/1000 strokes	: 131.0
Tolerance	
cm3/1000 strokes	: 1.0
Check tolerance	
cm3/1000s.	: <del>←</del> 4.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Chor todo strokes	. 0.0
Aneroid pressure	
hPa	:
Rated speed rpm	500
Del. quantity	
cm3/1000 strokes	: 136.0
Tolerance	
cm3/1000 strokes	: ← 1.0
Check tolerance	
cm3/1000S.	: <del>←</del> 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	. 43.0
cm3/1000s.	: 12.0
CTARTING FIFE AFE	TUENV
STARTING FUEL DEL	
Rated speed rpm	: 100
Del. quantity	
cm3/1000 strokes	: 180.0
Tolerance	44.4
cm3/1000 strokes	: <b>←</b> 10.0
Check tolerance	4/ 0
cm3/1000s.	: <del></del> 14.0
LOW IDLE	
Rated speed rpm	: 350
,	

M07

Rack travel in mm	:		5.00
Tolerance mm Del. quantity	:	+	0.10
cm3/1000 strokes	:		19.0
Tolerance			7.0
cm3/1000 strokes	:	+-	3.0
Check tolerance			
cm3/1000S.	:	+	6.0
Spreed			
Tolerance			
cm3/1000 strokes	:		6.0
Check tolerance			
cm3/1000s.	:		10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 20.06.97 Edition : 20.06.97
Test oil : ISO 4113

Combination No. : 0 402 746 647

Injection pump

Pump designation : PES6P120A720RS7366 EP type number : 0 412 726 933

Governor

Governer design. : RQV275...1100PA1208K

6overner no. : 0 421 815 459

Cust. part No. :

Customer-spec. information

Customer : IVECO-FRANCE

Motor

: 8460.41.4000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

40 temp. °C Tolerance °C

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : - 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.35

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 12.45

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 276.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed

Tolerance cm3/1000 strokes	: 5.0	+ Aneroid pressure + hPa	: 1200
Check tolerance		Del. quantity cm3/1000 strokes	: 276.0
cm3/1000s.	: 9.0	Tolerance cm3/1000 strokes	: + 1.0
		+ Check tolerance + cm3/1000s.	: +- 4.0
Rated speed rpm	: 275	Spreed Tolerance	• • • • • • • • • • • • • • • • • • • •
Rack travel in mm		+ cm3/1000 strokes	: 5.0
Tolerance mm	: <b>←</b> 0.10	+ Check tolerance + cm3/1000s.	: 9.0
Del. quantity cm3/1000 strokes	: 23.0	+ Cm5/10005.	; 9.0
Tolerance		+	
cm3/1000 strokes	: +- 3.0	CONTROL LEVER	
Check tolerance cm3/1000s.	: +- 6.0	CONTROL LEVER	
Spreed		+ control lever	
Tolerance	0.0	+ position degree	
cm3/1000 strokes Check tolerance	: 8.0	tolerance degree	: +- 4.0
	: 12.0	RATED SPEED	
		+ rack travel mm	
(D) CETTANG OF THE	FOTTON DUMP	Rated speed rpm	
(B) SETTING OF INJ WITH GOVERNOR	ECITON PUMP	+ Tolerance 1/min + Check	: + 5
		speed 1/min	: +- 10
GUIDE SLEEVE TRAVE	1	t rack travel mm	: 4.00
GOINE REFERE WAVE	<b>.</b>	Rated speed rpm	
	: 1155	+ Tolerance 1/min	
guide sleeve	25	+ Check	. 20
	: 9.75 : +- 0.15	speed 1/min	: +- 20
TOTEL BLICE IN		rack travel mm	: 0.50
Rated speed rpm	: 275	+ Tolerance mm	: <del></del> 0.50
guide sleeve	: 1.70	Rated speed rpm	: 1350
travel mm Tolerance mm	: + 0.20	1	
, 9 (0. 41.00 1		+	
	: 790	101.7015	
guide sleeve travel mm	: 6.42	LOW IDLE	
	: +- 0.25	1	
		- control lever	
	: 460	<pre>position degree tolerance degree</pre>	
guide sleeve travel mma	: 3.77	toterance degree	; +- 4.0
	: ← 0.25	Setting point w/c	out bumper spring
Data depart our	. 1//0	Potent annual annual	. 100
Rated speed rpm guide sleeve	: 1440	Rated speed rpm	: 100
travel mm	: 13.50	CRT mm min.	: > 8.20
Tolerance mm	: <b>←</b> 0.50	7	
·		† Testing:	
FULL LOAD DELIVERY	AT FULL LOAD STOP	Rated speed rpm	
	4400	† rack travel mm	: 6.70
Rated speed rpm	: 1100	+ Tolerance mm	: <del>+-</del> 0.10

M09

ated speed rpm	: 335	Aneroid pressure
		+ hPa : 1200
	<del></del>	Rated speed rpm : 650
RQUE CONTROL		+ Del. quantity
ted speed rpm	• 1100	+ cm3/1000 strokes : 283
t tookel on	. 1100	
k travel mm	: 12.45	+ Tolerance
lerance mm	: <b>+</b> 0.05	+ cm3/1000 strokes : +- 3
		+ Check tolerance
ted speed rpm	: 650	+ cm3/1000s. : +- 6
k travel mm erance mm	• 13 30	1
CTOYCC IND	. 13.30	<b>T</b>
erance inn	: - 0.10	
		+ Aneroid pressure
ed speed rpm	: 800	+ hPa : 1200
k travel mm	: 13.30	+ Rated speed rpm : 800
erance ma		+ Del. quantity
C. G. 10C (IN)	0.20	cm3/1000 strokes : 293
<del></del>	····	
ERGID/ALTITUDE		+ cm3/1000 strokes : +- 3
PENSATOR TEST		+ Check tolerance
" CHOMION ICOI		
		+ cm3/1000s. : +- 6
		†
TING		
		+ Aneroid pressure
ted speed rpm	• 200	+ hPa : -
sed speed this	. 1200	
essure hPa	: 1200	Rated speed rpm : 650
k travel mm		+ Del. quantity
erance mm	: +- 0.10	+ cm3/1000 strokes : 152
		+ Tolerance
ed speed rpm		+ cm3/1000 strokes : + 1
essure hPa	: -	+ Check tolerance
k travel mm	9.40	+ cm3/1000s. : +- 4
erance mm	: + 0.10	1 00001
cuarice ind	. — 0.10	Ţ
		†
SUREMENT		
		+ STARTING FUEL DELIVERY
ed speed rpm	: 800	+
		Rated speed rpm : 100
	. 200	T Nateu Speed (pin : 100
ssure hPa	: 290	+ rack travel mm : 12.
k travel mm	: 10.60	+ Tolerance mm $:+$ 0.
lerance mm	: +- 0.20	+ Del. quantity
,		- cm3/1000 strokes : 115
		+ Tolerance
	: 520	
	: 520 : 12.50	+ cm3/1000 strokes : +- 15
k travel mm	: 12.50	+ cm3/1000 strokes : +- 15
travel mm	: 12.50	cm3/1000 strokes : +- 15 Check tolerance
travel mm	: 12.50	+ cm3/1000 strokes : +- 15
c travel mm erance mm	: 12.50	cm3/1000 strokes : +- 15 Check tolerance
travel mm erance mm	: 12.50	cm3/1000 strokes : +- 15 Check tolerance
k travel mm erance mm	: 12.50	cm3/1000 strokes : +- 15 Check tolerance
k travel mm erance mm	: 12.50 : + 0.05	cm3/1000 strokes : +- 15 Check tolerance
travel mm rance mm t interlock d speed rpm	: 12.50 : + 0.05	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19
k travel mm erance mm rt interlock ed speed rpm	: 12.50 : + 0.05	cm3/1000 strokes : +- 15 Check tolerance
essure hPa ck travel mm lerance mm  art interlock ted speed rpm ted speed rpm	: 12.50 : + 0.05	cm3/1000 strokes : +- 15 Check tolerance cm3/1000S. : +- 19  LOW IDLE
erance mma  art interlock  eed speed rpm	: 12.50 : + 0.05	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19
ek travel mma erance mma ert interlock eed speed rpm eed speed rpm	: 12.50 : + 0.05 : > 170 : < 220	cm3/1000 strokes : +- 15 Check tolerance cm3/1000S. : +- 19  LOW IDLE
k travel mm erance mm ert interlock ed speed rpm ed speed rpm ck ed 1/min	: 12.50 : + 0.05	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19  LOW IDLE  Rated speed rpm : 275
k travel mm erance mm rt interlock ed speed rpm ed speed rpm ck ed 1/min ck	: 12.50 : + 0.05 : > 170 : < 220 : > 150	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19  LOW IDLE  Rated speed rpm : 275  Rack travel in mm : 6.
k travel mm erance mm  rt interlock ed speed rpm ed speed rpm ck ed 1/min ck	: 12.50 : + 0.05 : > 170 : < 220	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19  LOW IDLE  Rated speed rpm : 275  Rack travel in mm : 6. Tolerance mm : +- 0.
k travel mm erance mm  rt interlock ed speed rpm ed speed rpm ck ed 1/min ck	: 12.50 : + 0.05 : > 170 : < 220 : > 150	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19  LOW IDLE  Rated speed rpm : 275  Rack travel in mm : 6. Tolerance mm : +- 0.
travel mm rance mm t interlock d speed rpm d speed rpm k d 1/min	: 12.50 : + 0.05 : > 170 : < 220 : > 150	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19  LOW IDLE  Rated speed rpm : 275  Rack travel in mm : 6. Tolerance mm : +- 0. Del. quantity
travel mm rance mm  t interlock d speed rpm d speed rpm k d 1/min k d 1/min	: 12.50 : + 0.05 : > 170 : < 220 : > 150 : < 240	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19  LOW IDLE  Rated speed rpm : 275  Rack travel in mm : 6. Tolerance mm : +- 0. Del. quantity cm3/1000 strokes : 23
k travel mm erance mm  rt interlock ed speed rpm ed speed rpm ck ed 1/min	: 12.50 : + 0.05 : > 170 : < 220 : > 150 : < 240	cm3/1000 strokes : +- 15 Check tolerance cm3/1000s. : +- 19  LOW IDLE  Rated speed rpm : 275  Rack travel in mm : 6. Tolerance mm : +- 0. Del. quantity

Check tolerance : + 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 24.01.97 Test oil : ISO 4113

Combination No. : 0 402 796 814

Injection pump

Pump designation : PES6P120A720RS7367 EP type number : 0 412 726 932

Governor

Governer design. : RE30

Governer no. : 0 421 890 026

Cust. part No. :

Customer-spec. information

Customer : IVECO-FRANCE Motor : 8460.41.6000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp.  $^{\circ}$ C : 40 Tolerance  $^{\circ}$ C :  $\leftarrow$  2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

**REMARKS** 

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure har : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

Check

tolerance \*NW : +- 0.40

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1:

Setting point (P, R and H pump)

: 3.100 Uact V 13.00 CRT mm : +/- 0.05 Tolerance mm

Check

tolerance mm : +/- 0.10

Check value (P, R and H pump)

Uact V 1.700 CRT mm 6.15 : +/- 0.25 Tolerance mm Check

: +/- 0.30 tolerance mm

Setting point (M pump)

3.100 Uact V 12.50 CRT mm : +/- 0.05 Tolerance mm

Check

: +/- 0.10 tolerance mm

Check value (M pump)

1.700 Uact V 5.50 CRT mm Tolerance mm : +/- 0.25

Check

: +/- 0.30 tolerance mm

Stop position

: Value with Uact V

> deenergised adjusting magnet and control rod in

stop position.

0.75 CRT mm Tolerance mm : +/- 0.25

Check

tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60 Amplitude V 1.4 : +/- 0.6 Tolerance V Check tolerance V : +/- 1.20

Engine speed min-1: 600

Difference

Amplitude to

Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT VI

Rated speed rpm : 1050 Uact V 2.900

Del. quantity

cm3/1000 strokes : 296.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +-4.0

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500 Uact V 2.690

Del. quantity

cm3/1000 strokes : 238.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s.: +-6.0

TEST POINT L1

275 Rated speed rom

1.600 Uact V Tolerance Volt : + 0.060

Check tolerance

: +- 0.080Volt

Del. quantity

cm3/1000 strokes : 24.0

Tolerance

cm3/1000 strokes : +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0	
End of test specification sheet	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 24.04.97 : ISO 4113

Combination No. : 0 402 840 301

Injection pump

Pump designation : PE12P120A520LS8507

EP type number : 0 412 820 201

Governor

Governer design. : RQV300...1150PA1039

: -3K

Governer no. : 0 421 815 980

Cust. part No. : 51.11103-7329

Customer-spec. information

Customer : MAN Motor : D 28

: D 2842 LE 405

Power KW : 882.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C : + 2.0

Overflow valve : 1 417 413 078

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Overflow quantity

min. L/h

min. L/h : 180 Tolerance L/h : + 15.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

M15

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x Length min : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 6.45 Tolerance mm : ← 0.05

Check

tolerance mm : +- 0.1G

Rack travel in mm: 13.00

Tolerance mm : +- 0.50

Firing order : 12-1A- 5- 9A- 8

: - 3A- 4-11A- 10 : - 2A- 6

Phasing : 0-45-60-105-120

: -165-180-225-240

: -285-300-345

Tolerance : **←** 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance \*NW : + 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm Tolerance mm	: 13.50 : + 0.05
Del. quantity cm3/1000 strokes	: 331.0
Tolerance cm3/1000 strokes	: ← 1.0
Check tolerance cm3/1000s.	: + 4.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
	The Mathematical Control of the Art of the A
Rated speed rpm	: 390
Rack travel in mm Tolerance mm Del. quantity	: 5.20 : + 0.10
cm3/1000 strokes	: 49.0
Tolerance cm3/1000 strokes	: ← 3.0
Check tolerance cm3/1000s.	: <b>←</b> 6.0
Spreed Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
GUIDE SLEEVE TRAVEL	
Rated speed rpm	: 1206
guide sleeve travel mm	: 9.84
Tolerance mm	: <b>←</b> 0.25
Rated speed rpm guide steeve	: 300
travel mm	: 1.68
Tolerance mm	: +- 0.25
Rated speed rpm guide sleeve	: 797
travel mm	: 6.36 : + 0.25
Tolerance mm	: +- 0.25

Rated speed rpm	: 460	
guide sleeve		
travel mm Tolerance mm	: 3.78 : +- 0.25	
Rated speed rpm guide sleeve	: 1500	
travel mm	: 13.50	
Tolerance mm	: <b>←</b> 0.50	
SUIDE SLEEVE POSITION		
Rated speed rpm	: 1330	
Rack travel in mm	: 11.80	
Tolerance mm	: +- 1.30	
FULL LOAD DELIVERY AT FULL LOAD STOP		
Rated speed rpm Aneroid pressure	: 1150	
hPa	: 2000	
Del. quantity cm3/1000 strokes	: 331.0	
Tolerance		
cm3/1000 strokes Check tolerance	: ← 1.0	
cm3/1000s.	: + 4.0	
Spreed		
Tolerance cm3/1000 strokes	: 8.0	
Check tolerance		
cm3/1000s.	: 12.0	
CONTROL LEVER		
control lever		
position degree	: 118.0	
tolerance degree	: + 4.0	
RATED SPEED		
rack travel mm Rated speed rpm	: 12.50 : 1195	
Tolerance 1/min	: +- 5	
rack travel mm	: 4.00	
Rated speed rpm	: 4.00	
Tolerance 1/min	: + 15	
rack travel mm	: 0.50	
Tolerance mm	: ← 0.50	
Rated speed rpm	: 1400	

OW IDLE	
ontrol lever osition degree olerance degree	: 71.0 : + 4.0
etting point w/o	ut bumper spring
ated speed rpm	: 200
RT mm min.	: > 7.40
esting:	
ated speed rpm ack travel mm olerance mm	: 300 : 5.20 : ← 0.10
ated speed rpm	: 340
ORQUE CONTROL ated speed rpm ack travel mm olerance mm	
ated speed rpm ack travel man olerance man	: 1000 : 13.50 : +- 0.10
ated speed rpm ack travel mm olerance mm	: 850 : 12.60 : ← 0.10
ated speed rpm ack travel mm olerance mma	
ated speed rpm ack travel mm olerance mma	: 500 : 6.30 : ← 0.10
ated speed rpm ack travel mm olerance mm	: 500 : 7.40 : + 0.10
NEROID/ALTITUDE OMPENSATOR TEST	
ETTING	
ated speed rpm ressure hPa ack travel mm olerance mm	: 1000 : 2000 : 13.50 : ← 0.05

Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1000 : - : 7.60 : +- 0.15		
MEASUREMENT	4000		
Rated speed rpm	: 1000		
Pressure hPa rack travel mm Tolerance mm	: 220 : 7.95 : +- 0.05		
Pressure hPa rack travel mm Tolerance mm	: 1050 : 11.75 : +- 0.15		
Start interlock			
Rated speed rpm Rated speed rpm	: > 100 : < 220		
Check speed 1/min Check	: > 80		
speed 1/min	: < 240		
FUEL DELIVERY CHARACTERISTICS			
FUEL DELIVERY CHA	RACTERISTICS		
Aneroid pressure hPa Rated speed rpm	: 2000		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 2000 : 1000		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 2000 : 1000 : 335.0		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 2000 : 1000 : 335.0		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm	: 2000 : 1000 : 335.0 : + 3.0		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 2000 : 1000 : 335.0 : + 3.0 : + 6.0 : 2000 : 850		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes	: 2000 : 1000 : 335.0 : ← 3.0 : ← 6.0 : 2000 : 850 : 315.0		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 2000 : 1000 : 335.0 : ← 3.0 : ← 6.0 : 2000 : 850 : 315.0		
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 2000 : 1000 : 335.0 : ← 3.0 : ← 6.0 : 2000 : 850 : 315.0 : ← 3.0		

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s. 6.0

Delivery for shutoff assemblies (refer to cam sequence). Arbitrary delivery for standard plunger

barrel assemblies.

Aneroid pressure

hPa Rated speed rpm 500

Del. quantity

cm3/1000 strokes : 0.1

Tolerance

cm3/1000 strokes : +- 0.1

Check tolerance

cm3/1000S.0.1

Delivery for shutoff assemblies (refer to cam sequence). Arbitrary delivery for standard plunger barrel assemblies.

Aneroid pressure

hPa Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 165.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s. : **←** 15.0

Aneroid pressure

500

Rated speed rpm :

Del. quantity cm3/1000 strokes : 175.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: <del>←</del> 4.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 115.0

M18

Tolerance

cm3/1000 strokes :  $\leftarrow$  15.0

Check tolerance

cm3/1000s.: + 19.0

LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm: : +- 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 49.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. 6.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97 Test oil : ISO 4113

Combination No. : 0 402 840 302

Injection pump

Pump designation : PE12P12OA52OLS8507 EP type number : 0 412 820 201

Governor

Governer design. : RQV300...1050PA1039

: -4K

Governer no. : 0 421 815 498

Cust. part No. : 51.11103-7489

Customer—spec. information Customer : MAN

Motor : D 2842 LE 408

Power KW : 735.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 185 Tolerance L/h : + 15.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x Length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 6.45
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 13.00 Tolerance mm : + 0.50

Firing order : 12-1A- 5- 9A- 8

: - 3A- 4-11A- 10 : - 2A- 6

Phasing : 0-45-60-105-120

: -165-180-225-240

: -285-300-345

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1050

	1
Rack travel in mm : 11.80	Rated speed rpm : 470
Tolerance mm : + 0.05	+ guide sleeve
	+ travel mm : 3.89
Del. quantity	+ Tolerance mm : + 0.25
cm3/1000 strokes : 275.0	1 occi dilecting
11101 1000 JETORES . E73.0	Rated speed rpm : 1320
Tolerance	guide sleeve
cm3/1000 strokes : +- 1.0	+ travel mm : 13.50
Cino, 1000 361 0KC3	+ Tolerance mm : +- 0.50
Check tolerance	1 Total arice min 0.50
cm3/1000s. : +- 4.0	
(115) (0000;	GUIDE SLEEVE POSITION
Spreed	J GOIDE SEEEVE 1031/1014
opreed	I
Tolerance	- control lever
cm3/1000 strokes : 8.0	
CIID7 1000 SETORES . 0.0	+ position degree : - 1 + Rated speed rpm : 1185
Check tolerance	T Rated Speed (Mil. 1705)
cm3/1000s. : 12.0	Rack travel in mm: 10.80
CM3/10005 (2.0	+ Tolerance mm : +- 1.30
	T toterance iiii : T 1.50
	T
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
nated speed (pill . Dog	T TOLL LOAD DELIVERY AT FOLL LOAD STOP
Rack travel in mm : 5.20	Rated speed rpm : 1050
Tolerance mm : +- 0.10	Aneroid pressure
Del. quantity	+ hPa : 1500
m3/1000 strokes : 49.0	Del. quantity
Tolerance	+ cm3/1000 strokes : 275.0
cm3/1000 strokes : +- 3.0	Tolerance
Check tolerance	+ cm3/1000 strokes : +- 1.0
cm3/1000s. : +- 8.0	+ Check tolerance
Spreed	+ cm3/1000s. : +- 4.0
Tolerance cm3/1000 strokes : 8.0	+ Spreed
The state of the s	Tolerance : 8.0
Check tolerance cm3/1000s. : 12.0	
cm3/1000s. : 12.0	Check tolerance
	- cm3/1000s. : 12.0
(B) SETTING OF INJECTION PUMP	Ī
WITH GOVERNOR	
MILL GOACIGAOK	CONTROL LEVER
	TOTAL SEPER
GUIDE SLEEVE TRAVEL	- control lever
THE PERSON TO THE PARTY OF THE	position degree : 119.0
Rated speed rpm : 1122	tolerance degree : +- 4.0
guide sleeve	
travel mm : 10.59	RATED SPEED
Tolerance mm : + 0.15	rack travel mm : 10.80
1-ter erioc inin	Rated speed rpm : 1115
Rated speed rpm : 300	Tolerance 1/min : +- 5
guide sleeve	- Cool diloc 17 milli
travel mm : 1.61	rack travel mm : 4.00
Tolerance am : +~ 0.20	Rated speed rpm : 1185
10 (C) CR 10 C (MI) . ' U. CU	+ Tolerance 1/min : +- 15
Rated speed rpm : 768	Total and Triming . 1
guide steeve	rack travel mm : 0.50
travel mm : 6.62	Tolerance mm : +- 0.50
Tolerance mm : + 0.25	Rated speed rpm : 1300
intercrite ium : += U.C.	L varen sheen this : 1900

#### LOW IDLE

control lever

position degree : 72.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT man min. :> 7.00

Testing:

Rated speed rpm : 300 rack travel mm : 5.20 Tolerance mm : + 0.10

Rated speed rpm : 340

TORQUE CONTROL

Rated speed rpm : 1050 rack travel rm : 11.80 Tolerance rm : + 0.05

Rated speed rpm : 800 rack travel mm : 11.15 Tolerance mm : + 0.10

Rated speed rpm : 650 rack travel mm : 10.35 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 6.30 Tolerance mm : + 0.10

Rated speed rpm : 500 rack travel mm : 7.40 Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1000
Pressure hPa : 1500
rack travel mm : 11.80
Tolerance mm : +- 0.05

Rated speed rpm : 1000

Pressure hPa : rack travel mm : 7.75
Tolerance mm : +- 0.15

**MEASUREMENT** 

Rated speed rpm : 1000

Fressure hPa : 300 rack travel mm : 8.15 Tolerance mm : + 0.05

Pressure hPa : 900 rack travel mm : 10.85 Tolerance mm : + 0.15

Start interlock

Rated speed rpm : > 100 Rated speed rpm : < 220

Check

speed 1/min : > 80

Check

speed 1/min : < 240

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500 Rated speed rpm : 800

Del. quantity

cm3/1000 strokes : 275.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance cm3/1000s. : +- 6.0

Aneroid pressure

hPa : 1500 Rated speed rpm : 650

Del. quantity

cm3/1000 strokes : 260.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s. : +- 6.0

Delivery for shutoff assemblies (refer to cam sequence). Arbitrary delivery for standard plunger barrel assemblies.

Aneroid pressure

hPa : -

Rated speed rpm	:	500
Del. quantity cm3/1000 strokes	:	0.1
Tolerance cm3/1000 strokes	: +-	- 0.1
Check tolerance cm3/1000s.	: +	- 0.1
	•	<b>.</b>

Delivery for shutoff assemblies (refer to cam sequence). Arbitrary delivery for standard plunger barrel assemblies.

Aneroid pressure
hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 165.0
Tolerance
cm3/1000 strokes : + 15.0
Check tolerance
cm3/1000s. : + 15.0

Aneroid pressure 500 Rated speed rpm Del. quaritity cm3/1000 strokes : 185.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000S. Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. 12.0

# STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 135.0
Tolerance
cm3/1000 strokes : + 15.0
Check tolerance
cm3/1000S. : + 19.0

LOW IDLE

Delivery for standard plunger/barrel

assemblies.

Spreed

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm: 5.20
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 49.0
Tolerance
cm3/1000 strokes: + 3.0
Check tolerance
cm3/1000s: + 8.0

Tolerance cm3/1000 strokes :

Check tolerance cm3/1000s. : 12.0

8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13.03.97 Test oil : 13.03.97

Combination No. : 0 402 845 063

Injection pump

Pump designation : PE6P120A320RS8024-1

EP type number : 0 412 826 029

Governor

Governer design. : RQV250...1100PA1072

: -5K

Governer no. : 0 421 815 977

Cust. part No. : 477952-P05 v. 11.95

Customer-spec. information

Customer : VOLVO-TRUCK Motor : TD74 EU Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C Tolerance °C 40 : **←** 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 2.5 Tolerance bar : ← 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter :

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.60Tolerance mm :  $\leftarrow 0.05$ 

Check

tolerance mm : +- 0.10

Rack travel in mm: 7.60 Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: **←** 0.30 Tolerance

Check

: +- 0.75 tolerance "NW

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.60

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 211.0

Tolerance	+ guide sleeve
cm3/1000 strokes : $+-$ 1.0	+ travel mm : 2.97
	_ + Tolerance mm : +- 0.25
Check tolerance	+
cm3/1000s. : +- 4.0	+ Rated speed rpm : 390
	+ guide sleeve
Spreed	travel mm : 3.22
• •	+ Tolerance mm : + 0.25
Tolerance	1
cm3/1000 strokes : 8.0	Rated speed rpm : 1390
	+ guide sleeve
Check tolerance	+ travel mm : 13.50
cm3/1000s. : 11.0	Folerance mm : +- 0.50
	1 Total direct and 1 Total direc
	<del>-</del>
	GUIDE SLEEVE POSITION
Rated speed rpm : 300	I doing secret 10011104
nated speed (pill . 500	Ţ
Rack travel in mm : 4.80	- control lever
Tolerance mm : +- 0.10	position degree : - 1
Del. quantity	Rated speed rpm : 1290
cm3/1000 strokes : 23.0	†
Tolerance	+ Rack travel in mm : 7.50
cm3/1000 strokes : + 2.5	+ Tolerance mm : + 2.50
Check tolerance	†
cm3/1000s. : +- 5.0	
Spreed	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	†
cm3/1000 strokes : 5.0	+ Rated speed rpm : 1100
Check tolerance	+ Aneroid pressure
cm3/1000s. : 8.0	hPa : 1500
	+ Del. quantity
	+ cm3/1000 strokes : 211.0
(B) SETTING OF INJECTION PUMP	+ Tolerance
WITH GOVERNOR	+ cm3/1000 strokes : +- 1.0
	+ Check tolerance
	+ cm3/1000s. : + 4.0
GUIDE SLEEVE TRAVEL	+ Spreed
	+ Tolerance
Rated speed rpm : 1176	+ cm3/1000 strokes : 8.0
guide sleeve	- Check tolerance
travel mm : 10.15	+ cm3/1000s. : 11.0
Tolerance mm : + 0.25	1
्य प्रकारण प्राप्ता १ विश्वेष्ट	1
Rated speed rpm : 250	
guide sleeve	CONTROL LEVER
travel mm : 1.33	Torritor Ceren
Tolerance mm : +- 0.25	T control lever
TO CE CHIEF THE COLL	position degree : 68.0
Rated speed rpm : 733	tolerance degree : + 4.0
	T coverance degree 4.0
guide sleeve	T control lover
travel mn : 5.39	control lever
Tolerance mm : + 0.25	position degree : 120.0
Date of council page 1207	tolerance degree : +- 4.0
Rated speed rpm : 307	T DATES CORES
guide sleeve	+ RATED SPEED
travel mm : 2.29	rack travel mm : 12.60
Tolerance mm : + 0.25	Rated speed rpm : 1135
	† Tolerance 1/min : + 5
Rated speed rpm : 357	+

rack travel mm : 4.00 Rated speed rpm : 1230 Tolerance 1/min : + 15 rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1320 LOW IDLE control lever position degree : 72.0 tolerance degree : +- 4.0 control lever position degree : tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 200 CRT mm min. : > 6.70 Testing: Rated speed rpm : 3 300 rack travel mm 4.80 : + 0.10 Tolerance mm Rated speed rpm : 375 TORQUE CONTROL Rated speed rpm : 1100 rack travel mm : 13.6 13.60 Tolerance mm :  $\leftarrow$  0.05 Rated speed rpm : 650 rack travel mm : 13.10 Tolerance mm : +- 0.10 Rated speed rpm : 300 rack travel mm : 11.50 Tolerance mm : + 0.30 ANEROID/ALTITUDE COMPENSATOR TEST SETTING

Tolerance mm :  $\leftarrow$  0.10 Rated speed rpm : 1100 Pressure hPa rack travel mm : 7.75
Tolerance mm : + 0.10 MEASUREMENT Rated speed rpm : 1100 Pressure nra
rack travel mm : 5.50
:-- mm : +- 0.20 Pressure hPa : 885 Pressure hPa : 190 rack travel mm : 0.25 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure : 1500 hPa Rated speed rpm : 650 Del. quantity cm3/1000 strokes : 243.0 Tolerance cm3/1000 strokes :  $\leftarrow$  2.5 Check tolerance cm3/1000s. :  $\leftarrow$  5.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000s. : 14.0 Aneroid pressure Rated speed rpm : 650 Del. quantity cm3/1000 strokes : 115.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm: 4.80

Rated speed rpm : 1100

Pressure hPa : 1500 rack travel nmm : 13.60

Tolerance mm	: +-	0.10
Del. quantity cm3/1000 strokes Tolerance	:	23.0
cm3/1000 strokes Check tolerance	: +-	2.5
cm3/1000s. Spreed	: +-	5.0
Tolerance cm3/1000 strokes Check tolerance	:	5.0
cm3/1000s.	:	8.0

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.09.95 Test oil : ISO 4113

Combination No. : 0 402 846 068

Injection pump

Pump designation : PE6P110A320RS8036 EP type number : 0 412 816 012

Governor

Governer design. : RQV300...1200PA1043

: -2

Governer no. : 0 421 814 155

Cust. part No. : 11030951

: -P02 v.09.95

Customer—spec. information Customer : VME Motor : TD73KCE Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : ← 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.85
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

700

Rack travel in mm : 11.80

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 198.0

5 . 170.0

Tolerance	† guide sleeve
cm3/1000 strokes : +- 1.0	+ travel mm : 2.45
	+ Tolerance mm : $+$ 0.25
Check tolerance	+
cm3/1000s. : $+$ 3.0	Rated speed rpm : 520
	+ guide sleeve
Spreed	travel mm : 3.04
201.667	
Talana	+ Tolerance mm : +- 0.25
Tolerance	<b>†</b>
cm3/1 <b>000</b> strokes : 7.0	+ Rated speed rpm : 1550
	† guide sleeve
Check tolerance	+ travel mm : 11.50
cm3/1000s. : 11.0	+ Tolerance mm : +- U.50
	+
	+ GUIDE SLEEVE POSITION
Rated speed rpm : 300	1 40102 022242 1 00111011
Matea speed (pii) . 500	1
Rack travel in mm : 4.50	I control loven
	t control lever
Tolerance mm : + 0.10	+ position degree : - 1
Del. quantity	+ Rated speed rpm : 1285
cm3/1 <b>000</b> strokes : 24.0	+
Tolerance	+ Rack travel in mm : 16.50
cm3/1000 strokes : +- 2.0	+ Tolerance mm : ← 2.00
Check tolerance	+
$cm3/1000s.$ : $\leftarrow$ 5.0	
Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	T TOLE FORD DECIVERY AT TOLE FORD OTO.
cm3/1000 strokes : 5.0	Rated speed rpm : 700
	Y The second sec
Check tolerance	+ Aneroid pressure
cm3/1 <b>000</b> s. : 8.0	+ hPa : 1500
	+ Del. quantity
	+ cm3/1000 strokes : 198.0
(B) SETTING OF INJECTION PUMP	+ Tolerance
WITH GOVERNOR	+ cm3/1000 strokes : +- 1.0
	+ Check tolerance
	+ cm3/1000s. : + 3.0
GUIDE SLEEVE TRAVEL	+ Spreed
GOIDE SEEEVE TRAVEL	
Depart annual mass at ADEC	+ Tolerance
Rated speed rpm : 1256	+ cm3/1000 strokes : 7.0
guide sleeve	+ Check tolerance
travel mm : 8.24	+ cm3/1000s. : 11.0
Tolerance mm : + 0.25	†
	+
Rated speed rpm : 300	+
guide sleeve	+ CONTROL LEVER
travel mm : 1.19	1
Tolerance mm : + 0.25	+ control lever
	position degree : 47.0
Rated speed rom : 857	
the state of the s	tolerance degree : +- 4.0
guide steeve	
travel mm : 5.21	+ control lever
Tolerance mm : $\leftarrow$ 0.25	+ position degree : 115.0
	+ tolerance degree : +- 4.0
Rated speed rpm : 385	+
guide steeve	+ RATED SPEED
travel mm : 1.98	+ rack travel mm : 10.80
Tolerance mm : +- 0.25	+ Rated speed rpm : 1245
TO COLOR OF THE COLOR	
Opted aread per 175	† Tolerance 1/min : +- 5
Rated speed rpm : 435	Т

rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Tolerance mm Rated speed rpm	: 1350 : + 15 : 0.50
LOW IDLE	
control lever position degree tolerance degree	: 80.0 : +- 4.0
control lever position degree tolerance degree	: 14.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 6.60
Testing:	
Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm	: 340
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mma	: 700 : 11.80 : +- 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 11.80 : ← 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 7.80 : ← 0.10

Rated speed rpm	: 500
Pressure hPa rack travel mm	: 880 : 3.60
Tolerance mm	: <b>←</b> 0.20
Pressure hPa	: 240
rack travel mm	: 0.25
Tolerance mm	: <del></del> 0.05
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa Rated speed rpm	: – : 700
Del. quantity	. 100
cm3/1000 strokes	: 114.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Ch = -1	• 1.0
Check tolerance cm3/1900s.	
Check tolerance cm3/1000s.	
cm3/1900s.	: 4.0
cm3/1900s.  LOW IDLE  Rated speed rpm	: ÷- 4.0 : 300
LOW IDLE Rated speed rpm Rack travel in mm Tolerance mm	: ÷- 4.0 : 300
LOW IDLE Rated speed rpm Rack travel in mm	: ÷- 4.0 : 300 : 4.50 : + 0.10
cm3/1900s.  LOW IDLE  Rated speed rpm  Rack travel in mm  Tolerance mm  Del. quantity  cm3/1000 strokes  Tolerance	: ÷- 4.0  : 300 : 4.50 : + 0.10 : 24.0
cm3/1900s.  LOW IDLE  Rated speed rpm  Rack travel in mm  Tolerance mm  Del. quantity  cm3/1000 strokes	: ÷- 4.0 : 300 : 4.50 : + 0.10
cm3/1900s.  LOW IDLE  Rated speed rpm  Rack travel in mm  Tolerance mm  Del. quantity  cm3/1000 strokes  Tolerance  cm3/1000 strokes  Check tolerance  cm3/1000s.	: ÷- 4.0  : 300 : 4.50 : + 0.10 : 24.0
cm3/1900s.  LOW IDLE  Rated speed rpm  Rack travel in mm  Tolerance mm  Del. quantity  cm3/1000 strokes  Tolerance  cm3/1000 strokes  Check tolerance  cm3/1000s.  Spreed	: ÷- 4.0  : 300 : 4.50 : + 0.10 : 24.0 : + 2.0
cm3/1900s.  LOW IDLE  Rated speed rpm  Rack travel in mm  Tolerance mm  Del. quantity  cm3/1000 strokes  Tolerance  cm3/1000 strokes  Check tolerance  cm3/1000s.  Spreed  Tolerance	: ÷- 4.0  : 300 : 4.50 : + 0.10 : 24.0 : + 2.0 : + 5.0
cm3/1900s.  LOW IDLE  Rated speed rpm  Rack travel in mm  Tolerance mm  Del. quantity  cm3/1000 strokes  Tolerance  cm3/1000 strokes  Check tolerance  cm3/1000s.  Spreed	: ÷- 4.0  : 300 : 4.50 : + 0.10 : 24.0 : + 2.0

MEASUREMENT

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 14.10.96 Test oil : ISO 4113

Combination No. : 0 402 846 075

Injection pump

Pump designation : PE6P110A320RS8042 EP type number : 0 412 816 013

Governor

Governer design. : RQV300...1050PA1183

: -1

Governer no. : 0 421 814 159

Cust. part No. : 11032711

: -P01 V.08/96

Customer-spec. information

Customer : VCE

: TD 73 KDE Motor Power KW : 153.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 her : **←** 1.5 Tolerance bar

Test lines : 1 680 750 008

x inside diameter :

x length mm : 600

Outside diameter : 6.0

2.0

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.85
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 11.00 Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.30

Check

tolerance "NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 10.90

Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 178.0

**NO2** 

Tolerance		+ guide sleeve
cm3/1000 strokes	10	travel mm : 11.50
Chis/ 1000 Strokes	: +- 1.0	1
<b></b>		† Tolerance mm : +- 0.50
Check tolerance	<u>.</u>	†
cm3/1000s.	: +- 3.0	
		→ GUIDE SLEEVE POSITION
Spreed		1
<b>DD</b> . 202		<u>i</u>
Tolerance		- control lever
	7.0	
cm3/1000 strokes	: 7.0	<pre>position degree : - 1</pre>
		+ Rated speed rpm : 1259
heck tolerance		+
m3/1000s.	: 11.0	+ Rack travel in mm : 9.80
		+ Tolerance mm : + 1.30
		1 Total and min
	700	Published Actividade Actividade Actividade
ated speed rpm	: 300	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm	=	+ Rated speed rpm : 700
olerance im	: <b>←</b> 0.30	+ Aneroid pressure
el. quantity	-	+ hPa : 1500
m3/1000 strokes	: 24.0	Del. quantity
Tolerance	, 6,7+U	cm3/100G strokes : 178.0
m3/1000 strokes	: <del>+-</del> 2.5	+ Tolerance
theck tolerance		+ cm3/1000 strokes : +- 1.0
m3/1000s.	: <del> 5.0</del>	+ Check tolerance
preed		$\frac{1}{2}$ cm3/1000s. : +- 3.0
olerance		Spreed
3/1000 strokes	: 5.0	Tolerance
	. 5.0	- cm3/1000 strokes : 7.0
eck tolerance	6.6	
3/1 <b>000</b> s.	: 8.0	+ Check tolerance
		+ cm3/1000s. : 11.0
		+
) SETTING OF IN	JECTION PUMP	+
TH GOVERNOR		
		+ CONTROL LEVER
		+
UIDE SLEEVE TRAV	EL	+ control Lever
· · · · · · · · · · · · · · · · · · ·		position degree : 45.0
ated speed rpm	: 1107	tolerance degree : +- 4.0
	. 1101	T total alice degree . The 4.0
uide sleeve	. 7.04	T
ravet mm	: 7.86	+ control lever
lerance mm	: <del></del> 0.15	† position degree : 112.0
		+ tolerance degree : + 4.0
ted speed rpm	: 300	<del>-</del>
ide sleeve		A RATED SPEED
avel man	: 1.17	
lerance mm	: <b>←</b> 0.20	+ Rated speed rpm : 1095
	_	+ Tolerance 1/min : +- 5
ted speed rpm	: 804	+
ide sleeve		rack travel mm : 4.00
avel mm	: 5.19	+ Rated speed rpm : 1175
olerance mm	: <b>+</b> 0.25	Tolerance 1/min : +- 15
いして「白」でで「前利	, - U.L.J	T TOCET GILLE TABLET . TO 13
	570	<b>T</b>
ated speed rpm	: 530	+ rack travel mm : 0.50
uide sleeve		+ Tolerance mm : +- 0.50
ravel mm	: 3.11	+ Rated speed rpm : 1300
olerance mm	: <b>-</b> 0.25	4
WILL 1981		1
ated speed rpm	: 1400	
20 PC SCHOOL TOO	: 1400	T*

LOW IDLE

control lever

position degree : 82.0 tolerance degree : 4.0

control lever

position degree : 16.0 tolerance degree :  $\leftarrow$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :> 7.50

Testing:

Rated speed rpm : 300 rack travel mem : 4.50 Tolerance mm : +- 0.30

Rated speed rpm : 340

TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 10.90 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 10.90
Tolerance mm : +- 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 8.00
Tolerance mm : +- 0.10

**MEASUREMENT** 

Rated speed rpm : 500

Pressure hPa : 710 rack travel mm : 2.60 Tolerance mm : +- 0.20

Pressure hPa : 270 rack travel mm : 0.25

Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hFa : -Rated speed rpm : 700

Del. quantity

cm3/1000 strokes : 117.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm: 4.50
Tolerance mm: + 0.30

Del. quantity

cm3/1000 strokes : 24.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.5

Check tolerance

cm3/1000s. : +- 5.0 Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 8.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 16.07.97 : ISO 4113 Test oil

Combination No. : 0 402 846 076

Injection pump

Pump designation : PE6P120A320RS8043 EP type number : 0 412 826 035

Governor

Governer design. : RQV300...1100PA1248

Governer no. : 0 421 814 165

Cust. part No. : 11031330

: -P02 v.03.97

Customer-spec. information

Customer : VCE

: TD 103 KBE Motor Power KW : 216.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 150 Tolerance l/h : ← 20.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 25.0 Tolerance bar : + 1.0

Prestroke mm : 4.25 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 11.00 Tolerance mm : + 1.00

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: **←** 0.30 Tolerance

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm: 12.30

Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes	: 270.0	Tolerance mm : + 0.25
Tolerance	<del></del> ‡	Rated speed rpm : 1370 guide sleeve
cm3/1000 strokes	: +- 1.0	travel mm : 11.50 Tolerance mm : +- 0.50
Check tolerance cm3/1000s.	: +- 4.0	
Spreed	<del></del>	GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes	: 8.0	control lever position degree : - 1 Rated speed rpm : 1240
Check tolerance cm3/1000s.	: 11.0	Rack travel in mm : 11.30 Tolerance mm : +- 1.50
Rated speed rpm	: 330	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm	: 4.00 : + 0.10	Rated speed rpm : 700 Aneroid pressure
Del. quantity cm3/1000 strokes Tolerance	: 29.0	hPa : 1500 Del. quantity cm3/1000 strokes : 270.0
cm3/1000 strokes Check tolerance	+	Tolerance cm3/1000 strokes : +- 1.0
cm3/1000s. Spreed	: +- 5.0	Check tolerance cm3/1000s. : +- 4.0
Tolerance cm3/1000 strokes Check tolerance	: 5.0	Spreed Tolerance cm3/1000 strokes : 8.0
cm3/1000s.	: 8.0	Check tolerance cm3/1000s. : 11.0
(B) SETTING OF IN WITH GOVERNOR	NECTION PUMP	CONTROL LEVER
GUIDE SLEEVE TRAV	EL	control lever
Rated speed rpm	: 1140	position degree : 60.0 tolerance degree : +- 4.0
guide sleeve travel mm	: 7.71	control lever
Tolerance mm	: + 0.15	position degree : 115.0 tolerance degree : +- 4.0
Rated speed rpm guide sleeve	: 330	RATED SPEED
travel mm	: 2.10	rack travel mm : 11.30
Tolerance mm	: ← 0.20	Rated speed rpm : 1130 Tolerance 1/min : +- 5
Rated speed rpm guide sleeve	: 1080	rack travel mm : 4.00
travel mm	: 6.80	Rated speed rpm : 1220
Tolerance mm	: + 0.25	Tolerance 1/min : +- 15
Rated speed rpm guide sleeve	: 520	rack travel mm : 0.50 Tolerance mm : +- 0.50
travel mm	: 4.67	Rated speed rpm : 1275

## LOW IDLE

control lever

position degree : 65.0 tolerance degree : +- 4.0

control lever

position degree : 14.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 230

CRT mm min. : > 6.00

Testing:

330 Rated speed rpm : rack travel mm : 4.00 : **←** 0.10 Tolerance mm

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 12.30
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 500 Pressure hPa : 1500 rack travel mm : 12.30 Tolerance mm : + 0.05

500 Rated speed rpm Pressure hPa : 9.70 rack travel mm : +- 0.20 Tolerance mm

**MEASUREMENT** 

Rated speed rpm : 500

Pressure hPa 550 rack travel mm : 2.20 Tolerance mm : + 0.20

Pressure hPa : 230 rack travel mm : 0.25 Tolerance mm :  $\leftarrow$  0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 700

Del. quantity

cm3/1000 strokes : 202.0 Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : <del>←</del> 4.0

LOW IDLE

Rated speed rpm : 330

Rack travel in mm: 4.00 Tolerance mm :  $\leftarrow$  0.10 Del. quantity

cm3/1000 strokes : 29.0 Tolerance

cm3/1000 strokes :  $\leftarrow$  2.5

5.0

Check tolerance cm3/1000s.: +-

Spreed

Tolerance cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.12.96 Test oil : 19.72.96

Combination No. : 0 402 846 077

Injection pump

Pump designation : PE6P120A320RS8043 EP type number : 0 412 826 035

Governor

Governer design. : RQV300...1050PA1247

Governer no. : 0 421 814 163

Cust. part No. : 11031331-P02v.11.96

Customer-spec. information

Customer : VCE
Motor : TD 103 KCE
Power K₩ : 189.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity min. l/h : 205
Tolerance l/h : + 20.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.25 Tolerance mm : ← 0.05

Check

tolerance mm : ← 0.10

Rack travel in mm : 11.00Tolerance mm :  $\leftarrow 0.50$ 

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 500

Rack travel in mm : 12.90

Tolerance mm : + 0.05	+ guide sleeve
	travel mm : 3.11
Del. quantity cm3/1000 strokes : 322.0	Tolerance mm : + 0.25
CHOT TOUCH SEFORES : SZZ.U	Rated speed rpm : 1400
Tolerance	guide sleeve
cm3/1000 strokes : + 1.0	travel mm : 11.50
	Tolerance mm : + 0.50
Check tolerance	+
cm3/1000s. : + 4.0	
On a seal	GUIDE SLEEVE POSITION
Spreed	†
Tolerance	t control lever
cm3/1000 strokes : 8.0	position degree : - 1
CHD7 1000 SETORES . U.U	Rated speed rpm : 1250
Check tolerance	Haced opeca (pin . 1250
cm3/1000s. : 11.0	Rack travel in mm : 10.50
	Tolerance mm : +- 2,00
	+
200	
Rated speed rpm : 320	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 4.60	+ Reted speed rpm : 500
Tolerance mm : + 0.10	Reted speed rpm : 500 Aneroid pressure
Del. quantity	hPa : 1500
cm3/1000 strokes : 50.0	Dei. quantity
Tolerance	cm3/1000 strokes : 322.0
cm3/1000 strokes : + 2.5	Tolerance
Check tolerance	- cm3/1000 strokes : +- 1.0
$cm3/1000s.$ : $\leftarrow$ 5.0	Check tolerance
Spreed	cm3/1000s. : +- 4.0
Tolerance	Spreed
cm3/1000 strokes : 5.0	+ Tolerance + cm3/1000 strokes : 8.0
Check tolerance cm3/1000s. : 8.0	Check tolerance
CHD7 10003 0.0	cm3/1000s. : 11.0
	- 11.5
(B) SETTING OF INJECTION PUMP	<del> </del>
WITH GOVERNOR	
•	CONTROL LEVER
Out of all posts and all posts are all posts and all posts and all posts are all posts and all posts and all posts are all posts and all posts and all posts are all posts are all posts and all posts are all posts	†
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1102	position degree : 45.0 tolerance degree : +- 4.0
guide sleeve	toterance degree 4.0
travel mn : 7.80	control lever
Tolerance mm : + 0.15	position degree : 110.0
	tolerance degree : +- 4.0
Rated speed rpm : 320	+
guide sleeve	RATED SPEED
travel mm : 1.34	rack travel mm : 10.80
Tolerance mm : + 0.20	Rated speed rpm : 1090
Rated speed rpm : 802	Tolerance 1/min : +- 5
Rated speed rpm : 802 - guide sleeve	rack travel mm : 4.00
travel mm : 5.18	Rated speed rpm : 1190
Tolerance mm : + 0.25	Tolerance 1/min : +- 15
	1
Rated speed rpm : 530	rack travel mm : 0.50

N09

Tolerance mm Rated speed rpm	: +- 0.50 · 1250	† Tolerance mm	: +- 0.20
nated opeca i pa	. 1230	MEASUREMENT	
		Rated speed rpm	: 500
LOW IDLE		Pressure hPa rack travel mm Tolerance mm	: 970 : 2.90 : ← 0.20
control lever position degree tolerance degree		Pressure hPa rack travel mm Tolerance mm	: 230 : 0.25 : + 0.05
control lever position degree	: 18.0	Ī	
tolerance degree		FUEL DELIVERY CHA	PACTEDISTICS
Setting point w/o	out bumper spring	TOLL DECIVERY CHA	MACIENISTICS
Rated speed rpm	: 220	Aneroid pressure	: 1500
CRT mm min.	: > 7.40	Rated speed rpm	: 1050
Testing:		Del. quantity cm3/1000 strokes Tolerance	: 224.0
Rated speed rpm		cm3/1000 strokes	: +- 1.0
rack travel mm Tolerance mm		Check tolerance cm3/1000s.	: +- 4.0
Rated speed rpm	: 380	<del></del>	
TORQUE CONTROL	: 500	Aneroid pressure hPa Rated speed rpm	: - : 500
Rated speed rpm rack travel mm Tolerance mm	: 12.90	Del. quantity cm3/1000 strokes Tolerance	
Rated speed rpm	: 1050	+ cm3/1000 strokes Check tolerance	: + 1.0
rack travel mm Tolerance mm	: 11.80 : + 0.10	cm3/1000s.	: +- 4.0
Rated speed rpm rack travel mm Tolerance mm	: 12.10		
ANEROID/ALTITUDE COMPENSATOR TEST		LOW IDLE Rated speed rpm	• 320
CON BIOMION TEST		Rack travel in mm	
SETTING		Tolerance mm  Del. quantity	
Rated speed rpm Pressure hPa	: 500 : 1500	cm3/1000 strokes	: 50.0
rack travel mm	: 12.90	+ cm3/1000 strokes	: ← 2.5
Tolerance mm	: <b>←</b> 0.05	Check tolerance cm3/1000s.	: +- 5.0
Rated speed rpm Pressure hPa	500	+ Spreed + Tolerance	
rack travel mm	•	cm3/1000 strokes	: 5.0

N10

Check tolerance cm3/1000s.	:	8.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 24.04.97 Test oil

Combination No. : 0 402 848 300

Injection pump

Pump designation : PE8P12OA520LS8518 EP type number : 0 412 828 201

Sovernor

Governer design. : RQV300...115GPA1323K

Governer no. : 0 421 815 963

Cust. part No. : 51.11103-7492

Customer-spec. information

Customer : MAN

Motor : D 2848 LE 403 Power KW : 583.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 170
Tolerance L/h : + 15.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

x inside diameter : 3.0 x length mm : 600

Outside diameter: 8.0

Test lines : 1 680 750 089

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 5.65
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 13.00

Tolerance ma:  $\leftarrow$  0.50

Firing order : 8-7A- 2- 6A- 3

: - 5A- 4

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

Tolerance : ← 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.00

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes	: 335.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: <del>+</del> 4.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
Rated speed rpm	: 300
Rack travel in ms	: 5.20
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 49.0
Tolerance cm3/1000 strokes	: <del>←</del> 3.0
Check tolerance	
cm3/1000s.	: ÷- 8.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance	. 0.0
cm3/1000s.	: 12.0
(B) SETTING OF IN WITH GOVERNOR	
GUIDE SLEEVE TRAV	'EL
Rated speed rpm	: 1206
guide sl <i>e</i> eve travel mm	: 9.84
Tolerance mm	: +- 0.15
Rated speed rpm	: 300
guide steeve	. 500
travel mm	: 1.61 · ← 0.20
Tolerance mm	: ← 0.20
Rated speed rpm	: 797
guide sleeve travel man	: 6.36
Tolerance mm	: +- 0.25
Rated speed rpm	: 460
opeco , pa	

guide sleeve travel mm : 3.78 Tolerance mm : +- 0.25  Rated speed rpm : 1500 guide sleeve travel mm : 13.50 Tolerance mm : +- 0.50  GUIDE SLEEVE POSITION  Rated speed rpm : 1323
Rack travel in mm : 13.00 Tolerance mm : + 1.30
FULL LOAD DELIVERY AT FULL LOAD STOP
Rated speed rpm : 1150 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 335.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0
CONTROL LEVER
control lever position degree : 118.0 tolerance degree : + 4.0
RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1195 Tolerance 1/min : +- 5
rack travel mm : 4.00 Rated speed rpm : 1320 Tolerance 1/min : + 15
rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1475
LOW IDLE

control lever position degree tolerance degree	: 72.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 7.39
Testing:	
Rated speed rpm	: 300
rack travel mm	: 5.20
Tolerance mm	: +- 0.10
Rated speed rom	: 332
TORQUE CONTROL	
Rated speed rpm	: 1150
rack travel mm	: 14.00
Tolerance mm	: <del></del> 0.05
Rated speed rpm	: 1000
rack travel mm	: 13.10
Tolerance mm	: + 0.10
Rated speed rpm	
rack travel mm	
Tolerance mm	: <b>←</b> 0.10
Rated speed rpm	: 650
rack travel mm	: 11.20
Tolerance mm	: +- 0.10
Rated speed rpm	: 500
rack travel mm	- · ·
Tolerance mm	: <del>-</del> 0.10
Rated speed rpm	: 500
rack travel mm	: 7.40
Tolerance mm	: + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 1150
Pressure hPa	: 2000
rack travel mm	: 14.00
Tolerance mm	: +- 0.05
Rated speed rpm	: 1150
Pressure hPa	: -

rack travel mm Tolerance mm	: 7.80 : + 0.15
MEASUREMENT	
Rated speed rpm	: 1150
Pressure hPa rack travel mm Tolerance mm	: 330 : 8.10 : + 0.05
Pressure hPa rack travel mm Tolerance mm	: 1100 : 12.20 : + 0.15
Start interlock	
Rated speed rpm Rated speed rpm	: > 170 : < 230
Check speed 1/min Check	: > 150
speed 1/min	: < 240
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	: 2000
hPa Rated speed rpm Del. quantity	: 1000
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance	: 1000 : 315.0
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance	: 1000 : 315.0 : +- 4.0
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance cm3/1000 strokes	: 1000 : 315.0
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm	: 1000 : 315.0 : +- 4.0
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa	: 1000 : 315.0 : + 4.0 : + 8.0 : 2000
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1000 : 315.0 : +- 4.0 : +- 8.0 : 2000 : 850
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1000 : 315.0 : + 4.0 : + 8.0 : 2000 : 850 : 290.0
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Aneroid pressure	: 1000 : 315.0 : + 4.0 : + 8.0 : 2000 : 850 : 290.0 : + 4.0 : + 8.0
hPa Rated speed rpm Del. quantity cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure	: 1000 : 315.0 : + 4.0 : + 8.0 : 2000 : 850 : 290.0 : + 4.0 : + 8.0

Check tolerance cm3/1000s. : +- 8.0

Delivery for shutoff assemblies (refer to cam sequence). Arbitrary delivery for standard plunger barrel assemblies.

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 0.1
Tolerance
cm3/1000 strokes : + 0.1

Check tolerance

cm3/1000s. :  $\leftarrow$  0.1

Delivery for shutoff assemblies (refer to cam sequence).
Arbitrary delivery for standard plunger barrel assemblies.

Aneroid pressure

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 165.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s. :  $\leftarrow$  15.0

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 175.0
Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 4.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

# STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s. : +- 19.0

### LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm: 5.20 Tolerance mm: :+ 0.10

Del. quantity cm3/1000 strokes : 49.0

Tolerance

cm3/1000 strokes : +- 3.0
Check tolerance

cm3/1000S. : +- 8.0 Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) M400/...

Edition Test oil

: 30.07.96 : ISO 4113

Combination No. : 0 402 896 015

Injection pump

Pump designation : PE6P12OA32ORS8033 EP type number : 0 412 826 031

Governor

Governer design. : RE30

Governer no.

: 0 421 890 027

Cust. part No.

: 425758 P04 v. 09/95

Customer-spec. information

: VOLVO-TRUCK Customer

Motor

: DH 10 A

Power KW

: 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: **←** 2.0

Overflow valve

: 2 417 413 073

Inlet press. bar :

Tolerance bar : +-

0.1

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

208.5

Tolerance bar

1.5

Test lines

: 1 680 750 008

Outside diameter :

6.0

N16

x inside diameter : 2.0

x length mm :

600

REMARKS

Pump-specific values in Section (B)

must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

4,40 Prestroke mm

Tolerance mm Check

: + 0.05

tolerance mm : +- 0.10

Rack travel in mm: 10.50

Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.30

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

POSITION

Engine speed min-1:

Tolerance V : +/- 0.6 Setting point Check (P, R and H bump) tolerance V : +/- 1.20 Uact V 3,100 Engine speed min-1: 600 CRT mm 13.00 Difference : +/- 0.05 Tolerance mm Amplitude to Amplitude V : max.1.4 Check tolerance mm : +/- 0.10 Check value (P, R and H pump) (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 1.700 Uact V CRT mm 6.15 Rated speed rpm : 600 Tolerance mm : +/- 0.25 Uact V 2.800 Check Del. quantity cm3/1000 strokes : tolerance sm :  $\pm - 0.30$ 295.0 Tolerance cm3/1000 strokes :  $\leftarrow$  1.0 Setting point Check tolerance cm3/1000S. (M pump) : +-4.0 Spreed Uact V 3.100 Tolerance cm3/1000 strokes : CRT mans 12.50 8.0 Tolerance mm : +/- 0.05 Check tolerance cm3/1000S. Check 11.0 : +/- 0.10 FUEL DELIVERY CHARACTERISTICS tolerance mm Check value (M pump) Rated speed rpm : 950 Uact V 2.800 : 1.700 Uact V Del. quantity CRT mm 5.50 cm3/1000 strokes : 252.0 Tolerance mm : +/- 0.25 Tolerance cm3/1000 strokes :  $\leftarrow$  3.0 Check : +/- 0.30 Check tolerance tolerance mm cm3/1000s. : +- 6.0 Stop position Spreed Tolerance cm3/1000 strokes : : Value with 10.0 Uact V deenergised adjusting magnet Check tolerance cm3/1000s. and control rod in 14.0 stop position. CRT mm 0.75 : +/- 0.25 950 Tolerance mm Rated speed rpm Uact V Check 2.200 : +/- 0.35 Del. quantity tolerance mm cm3/1000 strokes : 178.0 Tolerance ENGINE-SPEED SENSOR cm3/1000 strokes : +- 3.0(All P and R pumps not Check tolerance H and M pumps) cm3/1000s. : +- 6.0 Test with control rod TEST POINT L1 in stop position Rated speed rpm : 250 1.470 Engine speed min-1: Uact V

Tolerance Volt : +- 0.060

Amplitude V :

1.4

Check tolerance Volt	: +- 0.060
	: 21.0
Tolerance cm3/1000 strokes	: +- 3.0
Spreed Tolerance	. 50
cm3/1000 strokes Check tolerance cm3/1000s.	: 5.0 : 8.0
CHO/ 10000.	. 0.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) V4CO/...

: 15.08.95 Edition : ISO 4113 Test oil

Combination No. : 0 402 896 017

Injection pump

Pump designation : PE6P12OA32ORS8O35 EP type number : 0 412 826 033

Governor

Governer design. : RE30

Governer no. : 0 421 890 030

: 3825439-SK0EV. Cust. part No.

: -AUDIT

Customer-spec. information Customer : PENTA

: TAMD 72 P-A Moror

: 316.0 Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

: 2 417 413 078 Overflow valve

Inlet press. bar : 2.5 Tolerance bar : +-

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar

Test lines : 1 680 750 008 Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm 4.05 Tolerance mm : +- 0.05

Check

tolerance mm : **←** 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 Phasing

: -300

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at

n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

POSITION

Engine speed min-1:

Setting point

(D D and U man	١	† tolerance V	/ 1 20
(P, R and H pump	,	tolerance v	: +/- 1.20
Uact V	: 3.100	Engine speed min-	1: 600
CRT num	: 13.00	+ Difference	
Tolerance mm Check	: +/- 0.05	+ Amplitude to + Amplitude V	1 may 1 /
tolerance mm	: +/- 0.10	I Ampereude v	i liidx. 1.4
totel alloc lin	,	4	
Check value		+	
(P, R and H pump	)	+ (C) INJECTION PUM	P WITH POSITIONER
		T TEST POINT V1	
Uact V	: 1.700	+	
CRT mm	: 6.15	+ Rated speed rpm	: 600
Tolerance mm	: +/~ 0.25	+ Uact V	: 2.800
Check		+ Del. quantity	
tolerance mm	: +/- 0.30	+ cm3/1000 strokes	: 305.0
		+ Tolerance	
		+ cm3/1000 strokes	: <del></del> 1.0
Setting point		+ Check tolerance	
(M pump)		+ cm3/1000s.	: +- 4.0
Hook W	. 7 100	+ Spreed	
Uact V CRT mm	: 3.100 : 12.50	+ Tolerance + cm3/1000 strokes	: 8.0
Tolerance mm		+ Check tolerance	. 0.0
Check	. 47 - 0.03	+ cm3/1000s.	: 11.0
tolerance mm	: +/- 0.10	+ FUEL DELIVERY CHA	· -
	. ,	+	
Check value		+	<del></del>
(M pump)		+ Rated speed rpm	: 1300
		+ Uact V	: 2.600
Uact V	: 1.700	+ Del. quantity	***
CRT mm	: 5.50	+ cm3/1000 strokes	: 215.0
Tolerance mm Check	: +/~ 0.25	+ Tolerance + cm3/1000 strokes	: <del>←</del> 3.0
tolerance mm	: +/- 0.30	+ Check tolerance	. — 5.0
COCCI OFFICE HEIR	. 17 0.30	- cm3/1000s.	: <del>←</del> 6.0
Stop position		Spreed	
		+ Tolerance	
Uact V	: Value with	+ cm3/1000 strokes	: 10.0
deen	ergised adjusting magnet	† Check tolerance	
	and control rod in	+ cm3/1000s.	: 14.0
	stop_position.	+	
CRT mm	: 0.75	+	4000
Tolerance mm	: +/- 0.25	+ Rated speed rpm	: 1000
Check	: +/- 0.35	+ Uact V + Del. quantity	: 2.400
tolerance mm	. +/- 0.33	+ cm3/1000 strokes	: 208.0
		Tolerance	. 200.0
ENGINE-SPEED SEN	SOR	+ cm3/1000 strokes	: +- 3.0
(All P and R pum		+ Check tolerance	
H and M pumps)		+ cm3/1000s.	: +- 6.0
• • •		+ Spreed	
Test with contro		+ Tolerance	
in stop position		+ cm3/1000 strokes	: 10.0
	4 (0	+ Check tolerance	. 4/ 0
Engine speed min		+ cm3/1000s.	: 14.0
Amplitude V	: 1.4 : +/- 0.6		
Tolerance V Check	. 7/- 0.0	Rated speed rpm	: 800
CHECK		I Hater speed (bill	. 500

Uact V	: 2.200
Del. quantity cm3/1000 strokes	: 191.0
Tolerance cm3/1000 strokes	: +- 3.0
Check tolerance	
cm3/1000s. Spreed	: +- 6.0
Tolerance cm3/1000 strokes	: 10.0
Check tolerance	
cm3/1000s.	: 14.0
TEST POINT L1	
Rated speed rom	: 275
Uact V	: 1.600
Tolerance Volt Check tolerance	: ← 0.060
Volt	: <b>←</b> 0.060
Del. quantity cm3/1000 strokes	: 88.0
Tolerance	
cm3/1000 strokes Spreed	: <del>+-</del> 3.0
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 10.07.97 : ISO 4113

Combination No. : 0 402 946 024A

Injection pump

Pump designation : PES6P120A720RS8045

EP type number : 0 412 926 028

Governor

Governer design. : RQ750PA1299

Governer no. : 0 421 801 810

Cust. part No. : 1388641 - Version A

Customer-spec. information Customer : SCANIA : DSC1158A Motor

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet temp. \*C : 40 Tolerance \*C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5
Tolerance bar : +- 0.1

Overflow quantity

win. l/h : 90
Tolerance l/h : +- 20.0

Test nozzle holde

: 1 688 901 104 assembly

Opening pressure

bar : 251.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.65 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.30

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850	+ Tolerance mm : +- 0.25
David A	Rated speed rpm : 953
Rack travel in mm: 13.70	+ guide sleeve
Tolerance mm : + 0.05	+ travel mm : 10.00
Del. quantity	Tolerance mm : + 0.25
cm3/1000 strokes : 338.0	Rated speed rpm : 1010
Chis/ 1000 Strokes . 330.0	+ guide sleeve
Tolerance	travel mm : 11.50
cm3/1000 strokes : +- 1.0	+ Tolerance mm : + 0.50
	Total unite min
Check tolerance	•
cm3/1000s. : +- 10.0	+ FULL LOAD DELIVERY AT FULL LOAD STOP
· · · · · · · · · · · · · · · · · · ·	. +
Spreed	+ Rated speed rpm : 850
	+ Aneroid pressure
Tolerance	+ hPa : 1500
cm3/1000 strokes : 8.0	Del. quantity
Check tolerance	_ + cm3/1000 strokes : 338.0 + Tolerance
cm3/1000s. : 12.0	+ cm3/1000 strokes : +- 1.0
· 12.0	+ Check tolerance
	- cm3/1000s. : - 10.0
	+ Spreed
	+ Tolerance
Rack travel in mm: 3.30	- cm3/1000 strokes : 8.0
Tolerance mm : +- 0.20	+ Check tolerance
Del. quantity	+ cm3/1000s. : 12.0
cin3/1000 strokes : 30.0	+
Tolerance	+
cm3/1000 strokes : + 4.0	
Check tolerance	CONTROL LEVER
Spreed	T control lever
Tolerance	position degree : 29.0
cm3/1000 strokes : 5.0	tolerance degree : + 4.0
Check tolerance	+
cm3/1000s. : 9.0	+ control lever
	+ position degree : 90.0
	tolerance degree : +- 4.0
(B) SETTING OF INJECTION PUMP	†
WITH GOVERNOR	ACCEMBLY COVERNOR CETTING
	ASSEMBLY GOVERNOR SETTING
GUIDE SLEEVE TRAVEL	Rated speed rpm : 900
	+ rack travel mm : 12.70
Rated speed rpm : 907	+
guide sleeve	Rated speed rpm : 936
travel mm : 5.23	+ Tolerance 1/min : + 4
Tolerance mm : +- 0.15	† rack travel mm : 4.00
	†
Rated speed rpm : 590	rack travel mm : 0.50
guide steeve	+ Tolerance mm : + 0.50
travel mm : -9.42	Rated speed rpm : 1000
Tolerance mm : + 0.25	I
Rated speed rpm : 1010	Rated speed rpm : 901
guide steeve	rack travel mm : 12.70
travel mm : 18.06	TOTAL CITY COMME
	•

Rated speed rpm Tolerance 1/min rack travel mm	: +- 4	rack travel mm Tolerance mm
rack travel mm Tolerance mm Rated speed rpm		ANEROID/ALTITUDE COMPENSATOR TEST
Rated speed rpm rack travel mms	: 902 : 12.70	SETTING Rated speed rpm
Rated speed rpm Tolerance 1/min rack travel mm	: +- 4	Pressure hPa rack travel mm Tolerance mm
rack travel mm Tolerance mm Rated speed rpm		Rated speed rpm Pressure hPa rack travel mm Tolerance mm
Rated speed rpm		MEASUREMENT
Rated speed rpm Tolerance 1/min rack travel mm	: 939 : +- 4	Rated speed rpm Pressure hPa rack travel mm Tolerance mm
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1000	Pressure hPa rack travel mm Tolerance mm
Rated speed rpm rack travel mm	: 904 : 12.70	FUEL DELIVERY CHAR
Rated speed rpm Tolerance 1/min rack travel mm	: +- 4	Aneroid pressure
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1000	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes
Rated speed rpm rack travel mm		+ Check tolerance + cm3/1000s.
Rated speed rpm Tolerance 1/min rack travel mm	: +- 4	+
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : + 0.50 : 1000	
		End of test specif

: 13.70 : ← 0.05 500 : 1500 : 13.75 : + 0.05 500 : -: 8.50 : +- 0.20 : 500 : 320 : 9.80 : ← 0.25 : 820 : 12.40 : ← 0.05 RACTERISTICS : 500 : 218.0 : **←** 1.0 : +- 6.0

ification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 10.07.97 : ISO 4113

Combination No. : 0 402 946 026A

Injection pump

Pump designation : PES6P120A720RS8045 EP type number : 0 412 926 028

Governor

Governer design. : RQV350...1100PA1305K

Governer no. : 0 421 815 967

Cust. part No. : 1388631 - Version A

Customer-spec. information Customer : SCANIA : DSI1174M Motor

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

: 40 : ← 2.0 temp. °C Tolerance °C

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 80 Tolerance L/h : + 10.0

Test nozzle holde

: 1 688 901 104 assembly

Opening pressure

bar : 251.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : - 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.30

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

Tolerance : +- 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

	1	
Rack travel in mm	: 11.75	Rated speed rpm : 460
Tolerance mm	: + 0.05	guide sleeve
	1	travel mm : 4.07
Del. quantity		Tolerance mm : +- 0.25
cm3/1000 strokes	: 302.0	TO COT GITTEE THAT
	1	Rated speed rpm : 1400
Tolerance		guide sleeve
cm3/1000 strokes	: + 1.0	travel mm : 13.50
CIID TOGO SCI ORCS	1	Tolerance mm : +- 0.50
Check tolerance		TOTAL MINE THE CONTRACT OF THE
cm3/1000s.	: + 9.0	
CIII-7 10000.	1	GUIDE SLEEVE POSITION
Spreed		00175 055645 1 001/10//
Op. 000	1	
Tolerance	1	control lever
cm3/1000 strokes	: 8.0	position degree : - 1
	1	Rated speed rpm : 1237
Check tolerance		110000 0,0000 1,000
cm3/1000s.	: 12.0	Rack travel in mm: 12.75
	1	Tolerance mm : + 1.30
		TOCCT GITCC THAI
	1	
Rated speed rpm	: 350	FULL LOAD DELIVERY AT FULL LOAD STOP
,	<del>-</del>	
Rack travel in mm	i: 4.10	Rated speed rpm : 1100
Tolerance mm	: ← 0.30 <sup>1</sup>	Aneroid pressure
Del. quantity	<del>}</del>	hPa : 1500
cm3/1000 strokes	: 30.0	Del. quantity
Tolerance	<del>}</del>	cm3/1000 strokes : 302.0
cm3/1000 strokes	: ← 3.0 }	Tolerance
Check tolerance	<del>}</del>	cm3/1000 strokes : +- 1.0
cm3/1000s.	: ← 6.0 <b>+</b>	Check tolerance
Spreed	+	$cm3/1000s$ . : $\leftarrow$ 9.0
Tolerance	+	Spreed
cm3/1000 strokes	: 4.0	Tolerance
Check tolerance	<del>}</del>	cm3/1000 strokes : 8.0
cm3/1000s.	: 8.0	Check tolerance
	+	cm3/1000s. : 12.0
	+	
(B) SETTING OF IN	HECTION PUMP +	
WITH GOVERNOR	+	
	+	CONTROL LEVER
CUINE OF EDIE TO !!	E	andral lavas
GUIDE SLEEVE TRAV	<u> </u>	control lever
Dated speed me	: 1166	position degree : 65.0 tolerance degree : +- 4.0
Rated speed rpm	• 1100	toterance degree : ** 4.0
guide sleeve travel mm	: 10.16	control lever
Tolerance mm	÷ 0.15	position degree : 119.0
roterance am	· <del>-</del> 0.13	( · · · · · · · · · · · · · · · · · · ·
Dated speed no	: 350	tolerance degree : +- 4.0
Rated speed rpm guide sleeve	. 330	RATED SPEED
guide steeve travel mm	: 2.00	rack travel mm : 10.70
Tolerance mm	÷ 0.20	Rated speed rpm : 1145
ioterance am	T	Tolerance 1/min : +- 5
Rated speed rpm	: 755	Check
guide sleeve	· '33	speed 1/min : + 10
travel mm	: 6.14	Specu (/iiii) 4 / 13
Tolerance mm	÷ + 0.25	rack travel mm : 4.00
IOCCIONCE MAN	т	FRANCIANCE INTO

Rated speed rpm : 1247 Tolerance 1/min : + 15 Check speed 1/min : + 20  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1350  LOW IDLE	Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1100  Pressure hPa : 340 rack travel mm : 8.35 Tolerance mm : + 0.25  Pressure hPa : 800 rack travel mm : 10.65 Tolerance mm : + 0.05
control lever position degree : 73.0 tolerance degree : + 4.0	FUEL DELIVERY CHARACTERISTICS
control lever position degree : 20.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 250	Aneroid pressure hPa : 1500 Rated speed rpm : 700 Tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 6.0
CRT mm min. : > 6.50  Testing:  Rated speed rpm : 350  rack travel mm : 4.10  Tolerance mm : + 0.30	Anercid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 163.0 Tolerance
TORQUE CONTROL Rated speed rpm : 1100 rack travel mm : 11.75 Tolerance mm : + 0.05  Rated speed rpm : 700	cm3/1000 strokes : ← 1.0 Check tolerance cm3/1000s. : ← 4.0
rack travel mm : 10.90 Tolerance mm : + 0.10	LOW IDLE
ANEROID/ALTITUDE COMPENSATOR TEST	Rated speed rpm : 350  Rack travel in mm : 4.10  Tolerance mm : + 0.30
SETTING	Del. quantity cm3/1000 strokes : 30.0
Rated speed rpm : 1100 Pressure hPa : 1500 rack travel mm : 13.75 Tolerance mm : + 0.05	Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000S. : + 6.0 Spreed Tolerance
Rated speed rpm : 1100 Pressure hPa : - rack travel mm : 7.10	- cm3/1000 strokes : 4.0 - Check tolerance - cm3/1000s. : 8.0